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PROVINCE OF MANITOBA;

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NORTH WEST TERRITORY

OF THE

DOMINION OF CANADA.

Report

PUBLISHED BY THE DEPARTMENT OF AGRICULTURE

OTTAWA

PROVINCE OF MANITOBA;
AND
NORTH WEST TERRITORY
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DOMINION OF CANADA.



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PROVINCE OF MANITOBA ;
AND
NORTH WEST TERRITORY OF THE DOMINION OF
CANADA.

The information contained in the following pages is published for the information of intending emigrants. It consists :—

1st.—Of the evidence taken before the Select Committee on Immigration and Colonization, of the House of Commons, of Canada, during the session of 1876. The Committee's report, signed by Mr. Trow, M.P., Chairman, in review of this evidence, contains the following remarks :—

“ The Committee have carefully examined Professor John Macoun, of Albert University, Belleville, who accompanied Mr. Fleming, Chief Engineer of the Pacific Railway Survey, across the Continent to the Pacific Coast, in the capacity of Botanist, with reference to the agricultural capabilities of the North-West Territory, particularly including the Peace River District and the Province of British Columbia. He showed very clearly that vast areas in those hitherto but little known regions contain agricultural resources of unbounded fertility, coupled with climatic conditions favorable to their development. He also showed the presence of very large deposits of coal and other valuable minerals. For particulars the Committee refer to the evidence of Professor Macoun herewith submitted.

“ The Committee also examined Mr. Henry McLeod, an Engineer of the Pacific Railway Survey, who crossed the Continent to the middle of the Rocky Mountains. He corroborates the evidence of Professor Macoun in reference to the great fertility of the soil and adaptability of the country for extensive settlement.

“ The Committee obtained an order of the House to ask the permission of the Senate to allow the Hon. Mr. Sutherland, a Senator from the Province of Manitoba, to appear before them, in order to furnish evidence respecting the agricultural capabilities of that Province, Mr. Sutherland being himself a practical farmer and having lived in the North-West all his life. It appears from his evidence that the cereals come to very great perfection and yield abundantly in Manitoba, as do also potatoes and other root crops, as well as all the ordinary kinds

of garden vegetables. He stated that the smaller varieties of corn ripened very well in Manitoba, but doubted if the tall American corn would succeed. The latter, it may be remarked, requires the temperature of a latitude further south than the older settled portions of Canada for successful cultivation; but the fact of the smaller varieties ripening is a climatic test of great importance to agriculturalists.

"With respect to the grasshopper scourge which proved so destructive in the Province of Manitoba last year, Mr. Sutherland stated that the grasshoppers have only made periodical visits with long intervals between. He had personally known an interval of immunity from them of forty years; and, further, that his examination into the circumstances of their presence last year, led him to believe, with confidence, that the Province would not be troubled with them this year; and in all probability not for many years to come.

"The winters in the North-West, except on the Pacific coast, appear to be rigorous, but the climate is reported to be singularly healthy, and the seasons for agricultural operations do not appear to be widely different in the Province of Manitoba from what they are in Ontario, but in fact very similar. The summer frosts, reported in the North-West Territory, appear to be precisely similar in character to those which prevail over a very large extent of the northern part of this continent, including the old settled portions of Canada and all the Northern United States.

"The Committee, in view of the importance of obtaining full information respecting the North-West Territory, further examined Captain Walker of the Mounted Police, now in this city, and also Mr. Macolm McLeod, of Aylmer. The evidence given by both of these gentlemen was strongly corroborative of that of the previous witnesses."

2nd.—A series of answers to questions put to him, is given from Mr. Kenneth Mackenzie, an Ontario farmer, settled on the Assiniboine River, in the Province of Manitoba, giving his experience and appreciation of the country as a field for settlement. His view is, on the whole, highly favorable.

3rd.—A narrative written by Mr. Jacob G. Shantz, in 1873, is given. Mr. Shantz is a German Mennonite, resident in Ontario, who was employed by the Department of Agriculture to accompany a delegate from the Mennonites in Russia, to visit the Province of Manitoba, and act as interpreter. Mr. Shantz' statements claim, in an especial manner, the confidence of his brethren.

The Mennonite settlement in Manitoba commenced in 1874 and has

continued to the present time. The early Mennonites, therefore, had the experience of the Grasshopper scourge in 1874 and 1875, yet they continued to write for their brethren to join them. The reports from there during the present year are to the effect that they are highly prosperous. The number of Mennonite settlers is now about 5,800, and the immigration is rapidly continuing.

4th.—A summary of the Dominion Lands Act is given, containing information which is important for intending settlers. The principal point is that any male or female who is the head of a family, or any person who has attained the age of 18 years, can obtain a free grant of a quarter section of 160 acres on the condition of three years settlement; and also obtain an entry for preemption rights to the adjoining quarter section, which he may obtain at \$1 per acre. Purchases of Dominion Lands may be made to the extent of 640 acres, at \$1 per acre. But no larger quantity than 640 acres will be made to any one person.

The Province of Manitoba contains about 9,000,000 acres. It is, however, comparatively a speck on the map of the Vast Territory belonging to the Dominion of Canada, out of which it has been formed. It is situated in the centre of the continent of North America, nearly equally distant between the pole and the equator and the Atlantic and Pacific Oceans. The soil is for the most part prairie, of great depth and richness, and covered with grass. Its climate gives the conditions of decided heat in summer and decided cold in winter. The snow goes away, and ploughing begins in April, which is about the same as in the older Provinces of Canada, or the Northern United States on the Atlantic seaboard, or the States of Minnesota or Wisconsin. Crops are harvested in August and September. The long, warm days of summer bring vegetation of all sorts to rapid maturity. Autumn begins about the 20th of September, and lasts till the end of November, when frost sets in. The winter proper comprises the months of December, January, February and March. Spring comes in April. The summer months are part of May, June, July, August, and part of September. The days are warm, and the nights cool. In winter, the thermometer sinks to 30 and 40 degrees below zero. But this degree

of cold in the dry atmosphere of the North-West does not produce any unpleasant sensations. The weather is not felt to be colder than that in the Province of Quebec, nor so cold as milder winters in climates where the frost, or even a less degree of cold than frost, is accompanied with dampness. The testimony is universal on this point.

Snow does not fall on the prairies to an average greater depth than 18 inches ; and buffaloes and horses graze out of doors all winter.

The summary of the whole seems to be that the climate of Manitoba is undoubtedly very healthy ; that the soil gives very large products ; that the great drawback is the visitation of grasshoppers, which are common to it and the state of Minnesota and others of the North Western States.

The whole of the North-West Territory of the Dominion comprises an area of about 2,750,000 square miles and British Columbia 220,000 square miles. Altogether the Dominion of Canada comprises a territory about the size of the whole continent of Europe ; and nearly half a million square miles larger than the United States, without Alaska.

Until the completion of the Canadian Railway system, the best way for emigrants to reach Manitoba, from the old Provinces of Canada, is via Lakes Huron and Superior to Duluth ; thence by the Northern Pacific Railway to the Red River ; and thence by direct steamboat communication to Winnipeg. There are regular lines of boats from Sarnia and Collingwood, which are reached respectively from Toronto by the Grand Trunk and Northern Railways. Favorable fares are afforded to emigrants, and the time between Toronto and Winnipeg is about seven days.

It may be further stated that the immense water system of the interior of the continent, west of Winnipeg, is being opened up by steamboat navigation to the base of the Rocky Mountains.

The emigrants who go to Manitoba for settlement should, for the present, be of the agricultural class, and possessed of sufficient means to begin with. Sometimes high wages are given to laborers and artisans, but the labor market, in a new country, being necessarily restricted, persons going to seek for employment should have special information before they start.

NORTH WEST TERRITORY.

EVIDENCE taken before the Immigration and Colonization
Committee of the House of Commons.

PROFESSOR MACOUN'S EVIDENCE.

OBSERVATIONS IN THE NORTH-WEST AND PEACE RIVER DISTRICT.

COMMITTEE ROOM, HOUSE OF COMMONS.

Friday, March 24th, 1876.

Professor *John Macoun*, of Albert University, Belleville, appeared before the Committee:—

By Chairman:—

Q. What led you to explore the North-West, and what points did you visit on your trips?

A. About the middle of July, 1872, I met Mr. Fleming at Collingwood who was then on his way to the Pacific. Learning that I was a botanist, and being desirous of obtaining all the information possible about the interior, he invited me to accompany him. I consented, and formed one of his party as far as Edmonton, on the Saskatchewan, 890 miles by cart road from Winnipeg. By his orders, I left his party at this point, in company with Mr. Charles Horetzky, proceeded to Peace River, by Fort Assiniboine, on the Athabasca to Little Slave Lake, and thence to Peace River. I passed the Rocky Mountains by the "Peace River Pass" during the last days of October, and reached Victoria about the middle of December.

Last year the Government commissioned Mr. Selwyn, Director of the Geological Survey, to explore the Peace River country, and I accompanied him as botanist. I left Victoria, Vancouver Island, about the middle of May, and reached Hudson's Hope, on Peace River, east of the Rocky Mountains, July 21st. I passed down the river to Lake Athabasca, examining the country as I went, and reached there on the 24th August. Distance from the Mountains, by river, 760 miles. On the 3rd September I left Lake Athabasca and sailed up the Athabasca River for 180 miles. I then went up the Clearwater to Methy Portage, and from thence to Isle La Crosse and Lake, reaching Carleton on the Saskatchewan, October 6th. I then took the cart road to Winnipeg, and reached there November 1st, having travelled over 2,000 miles since the 21st of July.

Q. What were your instructions?

A. To carefully note the vegetable productions throughout the various regions traversed, to examine the soil, and record everything which I thought might be of use to the country.

Q. Did you make a collection of the plants of the parts of the country you visited?

A. Yes. I have very large collections of the whole flora from Lake Superior to the Pacific. These will be distributed under the direction of the Government to various institutions of learning, next summer, and a detailed account will be given in my general report.

Q. Judging from the specimens you collected, what is your opinion of the capabilities of the North-West for agricultural settlement?

A. That the greater part of it is just as well suited for settlement as Ontario, as regards the products of the soil and raising of stock, there can be no doubt. Its flora show that its summer heat is nearly equal to that of Ontario and greater than that of Quebec.

Q. State your opinion as to sections as indicated by your collections?

A. A continuous farming country extends from Point du Chien to the Assiniboine, at Fort Ellice, a distance of 230 miles, without a break. Beyond this there are 25 miles of dry, gravelly ground, of little account for anything except pasture. Then follows a very extensive tract of country stretching westward to the South Saskatchewan, and extending indefinitely north and south. This wide region contains many fine sections of rich fertile country, interspersed with poplar groves, rolling, treeless prairie, salt lakes, saline and other marshes, and brackish or fresh water ponds. What is not suited for raising cereals is excellent pasture land. Only a few of the salt lakes would be injurious to cattle or horses; and fresh water can be obtained without doubt a little below the surface.

The soil of this whole region is a warm, gravelly or sandy loam. The surface soil, to a depth of from one to three feet, is a brown or black loam. The subsoil being generally either sand or gravel, consisting principally of limestone pebbles; many boulders are found in some sections. The land between the two Saskatchewan is nearly all good. Prince Albert Mission settlement is situated in this section. At Carlton I crossed the North Saskatchewan, and therefore know nothing personally of the immense region extending west and south thence to the Boundary. All accounts, however, agree in saying it is the garden of the country. Good land, generally speaking, extends northward to Green Lake, a distance of 170 miles from Carleton. How much further eastward this good land extends I am unable to state; but Sir John Richardson says that wheat is raised without difficulty at Cumberland House. The good arable land is about 25 miles wide at Edmonton, but possibly not so wide at Fort Pitt, more to the east, but further north. This region is bounded on the south by the North Saskatchewan, and on the north by the watershed between it and the Beaver and Athabasca Rivers. Within this area there are five settlements where wheat is raised regularly without difficulty, viz: the Star Mission, (Church

of England), 60 miles north of Carleton on the Green Lake Road; Lac La Biche Mission, (R. C.), 100 miles from Fort Edmonton; Victoria Mission, (Wesleyan), 80 miles east of Edmonton, and St. Albert Mission, (R. C.), 9 miles north of Edmonton, and at Edmonton itself. Edmonton seems to be the coldest point in the district in question, and suffers most from summer frosts.

Next is a very extensive district forming the watersheds between the Saskatchewan and Peace Rivers, and through which the Athabasca River flows for its whole course, and from which it receives its waters. This region is all forest, and consists of muskeg, (swamp), spruce and poplar forests. Very little is known of this region, but the soil where I crossed it is generally good where not swampy. West of Edmonton, where the railway crosses the section, there is said to be much swamp, but between Fort Pitt and the Forks of the Athabasca there is scarcely any swamp, although it is nearly all forest.

Next comes the Peace River section extending along the Rocky Mountains from a little north of Jasper's House to Fort Liard, Lat. 61 north; and from the former point to the west end of Little Slave Lake; thence to the Forks of the Athabasca, and down that River to Athabasca Lake, and from thence to Fort Liard. The upper part of this immense area is principally prairie, extending on both sides of the Peace River. As we proceed to the north and east the prairie gradually changes into a continuous poplar forest with here and there a few spruces, indicating a wetter soil. The general character of this section is like that of Manitoba west from Portage La Prairie to Pine Creek.

Wheat was raised last year at the Forks of the Athabasca, at the French Mission, (Lake Athabasca), at Fort Liard, and at Fort Vermillion in this section.

Q. Did you obtain any particular climatic observations other than you inferred from the flora, and if so of what nature were they?

A. The following observations and extracts will speak for themselves. I was on Peace River during the whole month of October, 1872; part of my work was to note the temperature, which I did with care. The average reading of the thermometer at eight o'clock p.m., for the ten days between the 10th and 19th October, was $42\frac{1}{2}^{\circ}$ in Lat. 56° , while at Belleville, Ontario, in Lat. 44° , it was only $46\frac{1}{2}^{\circ}$ at 1 p.m., being only 4° higher with a difference of 12° in Latitude. (For details see Pacific Railway Survey Report for 1874, page 96).

Captain Butler passed through the same region in the following April, and states that the whole hillside was covered with the blue anemone (*Anemone patens*) on the 22nd of April. See Wild North Land.

Daniel Williams (Nigger Dan), furnished the following extracts from his notebook:

" 1872.

" Ice began to run in river November 8th.

" River closed November 28th.

" First snow October 28th.

" 1873.

" April 23rd, ice moved out of river.

" Planted potatoes April 25th.

" First permanent snow November 2nd.

" River closed November 30th.

" 1874.

" River broke up 19th April.

" First geese came 21st April.

" Sowed barley and oats April 22nd.

" River clear of upper ice May 3rd."—N.B. Upper ice from above the Rocky Mountain Canon.

" Planted potatoes May 5th.

" Potatoes not injured by frost until 22nd September. Then snow fell, which covered them, but soon went off. Dug over 100 bushels from one planting." This is possibly too large.—J. M.

" Ice commenced to run in river October 30th.

" River closed November 23rd.

" Snowed all night November 4th.

" 1875.

" Ice broke up in river April 15th.

" Warm rains from north-west; blue flies and rain, February 18th.

" Ice cleared out in front of Fort April 16th.

" Potatoes planted 8th, 9th and 10th May.

" Barley and oats sown May 7th.

" Snow all gone before the middle of April. This applies to both the river valley and the level country above." Difference in level 746 feet.

The potatoes were dug out in quantities, and were both large and dry. On the 2nd August, seventeen men got a week's supply at this time. These men were traders from down the river who depended on their guns for food. The barley and oats were both ripe about the 12th August. (Both on Exhibition at Philadelphia.)

Extract from the Hudson Bay Company's Journal, Fort St. John, Peace River, for a series of ten years. Lat. 56° 12' North, Long. 120° west. Altitude above the sea, nearly 1,600 feet.

Opening of River.		First ice drifting in River.	
1866—April	19.....	November	7
1867—do	21.....	do	3 or 8
1868—do	20.....	do	7
1869—do	23.....	do	8
1870—do	26	do	No record.
1871—do	18.....	do	10
1872—do	19....	do	8
1873—do	23.....	do	4
1874—do	19.....	October	31
1875—do	16.....		

In a pamphlet published by Malcolm McLeod, Esq., in the year 1872, he shows that the summer temperature at Dunvegan, 120 miles further down the river, is about half a degree less than that of Toronto, the one averaging $54^{\circ} 14'$ and the other $54^{\circ} 44'$.

At Battle River, over 100 miles farther down, Indian corn has ripened three years in succession, and my observations tend to show that the summer temperature at this point is greater than it is higher up.

At Vermillion, Lat. $58^{\circ} 24'$ I had a long conversation with old Mr. Shaw, who has had charge of this Fort for sixteen years; he says that frosts never injure anything on this part of the river, and every kind of garden stuff can be grown. Barley sown on the 8th May, cut 6th August, and the finest I ever saw. Many ears as long as my hand and the whole crop thick and stout. In my opinion this is the finest tract of country on the river. The general level of the country is less than 100 feet above it.

At Little Red River I found everything in a very forward state. Cucumbers started in the open air were fully ripe; Windsor, pole beans and peas were likewise ripe, August 15th. Fort Chipweyan, at the entrance to the Lake Athabasca, has very poor soil in its vicinity, being largely composed of sand; still, here I obtained fine samples of wheat and barley—the former weighing 68 lbs. to the bushel, and the latter 58 lbs. The land here is very low and swampy, being but little elevated above the lake. At the French Mission, two miles above the Fort, oats, wheat and barley were all cut by the 26th August. Crop rather light on the ground.

Mr. Hardisty, Chief Factor in charge of Fort Simpson, in Lat. 61°N. , informed me that barley always ripened there and that wheat was sure four times out of five. Melons if started under glass ripen well. Frost seldom does them much damage.

Chief Trader Macdougall says, that Fort Liard, in Lat. 61°N. , has the warmest summer temperature in the whole region, and all kinds of grain and garden stuff always come to maturity. He has been on the Yucon for twelve years, and says that most years barley ripens under the Arctic Circle in Long. 143°W.

The localities mentioned were not chosen for their good soil, but for the facilities which they afford for carrying on the fur trade, or for mission purposes. Five-sixths of all the land in the Peace River section is just as good as the points cited, and will produce as good crops in the future. The reason so little is cultivated is owing to the fact that the inhabitants, whites and Indians, are flesh-eaters. Mr. Macfarlane, Chief Factor in charge of the Athabasca District, told me that just as much meat is eaten by the Indians when they receive flour and potatoes as without them.

At the Forks of the Athabasca, Mr. Moberly, the gentleman in charge, has a first-class garden, and wheat and barley of excellent quality. He has cut an immense quantity of hay, as the Hudson Bay Co. winter all the oxen and horses used on Methy Portage at this point. He told me that in a year or two the Company purposed supplying the whole interior from this

locality with *food*, as the deer were getting scarce and supplies rather precarious. This is the identical spot where Mr. Pond had a garden filled with European vegetables when Sir Alexander Mackenzie visited it in 1787.

The following extracts are from Sir Alexander Mackenzie's travels. He passed the winters of 1792 and 1793 near Smoky River, and writes as follows:—"November 7th. The river began to run with ice yesterday, which we call the last of navigation. On the 22nd the river was frozen across, and remained so until the last of April." Between the 16th November and the 2nd December, when he broke his thermometer, the range at 8.30 a. m. was from 27° above to 16° below zero; at noon the range was from 29° above to 4° below; and at 6 p. m. it was from 28° above to 7 below°. "On the 5th January, in the morning, the weather was calm, clear and cold, the wind blew from the south-west, and in the afternoon it was thawing. I had already observed at the Athabasca that this wind never failed to bring us clear, mild weather, whereas when it blew from the opposite quarter it produced snow. Here it is much more perceptible, for if it blows hard from the south-west for four hours a thaw is the consequence. To this cause may be attributed the scarcity of snow in this part of the world. At the end of January very little snow was on the ground, but about this time the cold became very severe and remained so to the 16th March, when the weather became mild, and by the 5th April all the snow was gone. On the 20th the gnats and mosquitoes came, and Mr. Mackay brought me a bunch of flowers of a pink colour and a yellow button (*Anemone patens*), encircled with six leaves of a light purple. On the other side of the river, which was still covered with ice, the plains were delightful—the trees were budding, and many plants in blossom. The change in the appearance of the face of Nature was as sudden as it was pleasing, for a few days only were passed away since the ground was covered with snow. On the 25th the river was cleared of the ice."

Q. State your impression as to what parts of the country are suitable for cereals, distinguishing wheat from the coarser grains?

A. I consider nearly all the Peace River section to be well suited for raising cereals of all kinds, and at least two-thirds of it fit for wheat. The soil of this section is as good as any part of Manitoba, and the climate if anything is milder.

The Thickwood country, drained by the Athabasca, has generally good soil, but it is wet and cold. At least one-half is good for raising barley and wheat, while much of the remainder would make first-class pasture and meadow lands.

I am not so well acquainted with the Saskatchewan section, but from what I know of it it has generally good soil and a climate not unsuitable for wheat raising. Between Fort Pitt and Edmonton, there is a tract which I consider subject to summer frosts, but it would produce immense crops of hay. This district is the only dangerous one in the Saskatchewan country.

Of the high country between the South Saskatchewan and Manitoba, and

south to the boundary, I know but little. If it could be shown that summer frost did no injury in the region in question, I could say that from its soil and vegetation the greater part would produce wheat. At all events barley and peas will be a sure crop. I cannot speak decidedly of this large area, as from its exposed position and height from the sea, there is a danger of injury to the crops from frosts. The future will decide this point.

Q. Referring to the cultivable parts of the central or prairie regions between the Province of Manitoba and the Rocky Mountains, can you state whether there are early or summer frosts, which would be likely to prove detrimental to the cultivation of wheat?

A. In answering the last question, I stated that I could not be certain from my own observations, but I incline to the opinion that many large areas will be found altogether free from frosts, while others will be injured by them. While crossing the Plains with Mr. Fleming in August, 1872, the thermometer fell to 30° on the morning of the 14th, and ice was formed in some of the vessels, but I saw no injury done to vegetation. This was about ninety miles east of the South Saskatchewan. Captain Palliser records the thermometer falling below freezing point on the 14th August, 1857, in the neighborhood of Fort Ellice, but vegetation did not seem to suffer. It seems that the first frost to do any injury comes about the 20th of this month, and that it is just as likely to effect Manitoba as the country further west.

Q. Have you noticed the very large claims as to the yield of wheat in the valley of the Red River, and can you state what is the maximum yield per acre, giving any information as to the special qualities or weight of the grain?

A. I have noticed the large claims advanced, but doubt their accuracy. From what I could learn, I should think thirty-five bushels per acre as pretty near the average. Cultivation like that of Ontario would give a much greater yield, as there are more grains to the ear than in Ontario. The grain is heavier, but whether it produces more flour to the bushel, I am unable to say. Peas will always be a heavy crop in the North-West, as the soil is suitable, and a little frost does them no harm.

Q. State your impressions from your observation of the capabilities of the Peace River country for successful settlement?

A. All my observations tended to show that the whole Peace River country was just as capable of successful settlement as Manitoba. The soil seemed to be richer—the country contains more wood; there are no saline marshes or lakes; the water is *all* good—there are no summer frosts—spring is just as early and the winter sets in no sooner. The winter may be more severe; but there is no certainty of this.

I would not advise any attempt to settle this region until after the settlement has extended at least to Edmonton, as there is at least 150 miles of broken country between the two.

Q. What time does the season open so that spring ploughing and seeding can be carried on?

A. From my former answers it will be seen that about the 20th of April ploughing can commence on Peace River, and from data in my possession the same may be said of the Saskatchewan regions generally.

It is a curious fact that spring seems to advance from north-west to south-east, at a rate of about 250 miles per day, and that in the Fall winter begins in Manitoba first and goes westward at the same rate.

Q. Have you any knowledge of the temperature, and how the thermometer ranges during the year?

A. The following data selected from various sources will throw considerable light on this question. It is worthy of note that Halifax on the sea coast is nearly as cold in spring and summer as points more than twelve degrees further north.

Spring, summer and autumn temperature at various points, to which is added the mean temperature of July and August, the two ripening months.

	Latitude north.	Summer.	Spring.	Autumn.	July and August.
Cumberland House	53°37'	62·62	33·04	32·70	64·25
Fort Simpson	61°51'	59·48	26·66	27·34	62·31
Fort Chipewyan.....	58°42'	58·70	22·76	31·89	60·60
Fort William	48°24'	59·94	39·67	37·80	60·52
Montreal	45°31'	67·26	39·03	45·18	68·47
Toronto	43°40'	64·43	42·34	46·81	66·51
Temiscamingue	47°19'	65·23	37·58	40·07	66·43
Halifax	44°39'	61·00	31·67	46·67	66·55
Belleville	44°10'	temperature nearly that of Toronto.			
Dunvogan, Peace River.....	56°08'	average summer six months			54·44
Edmonton	53°31'	39·70
Carlton	52°52'	35·70
Winnipeg	49°52'	64·76	30·13	35·29	65·32

Any unprejudiced person making a careful examination of the above figures will be struck with the high temperatures obtained in the interior. Edmonton has a higher spring temperature than Montreal, and is eight degrees farther north and over 2,000 feet above the sea. The temperatures of Carlton and Edmonton are taken from Captain Palliser's explorations in the Saskatchewan country, during the years 1857 and 1858. It will be seen that the temperatures of the months when grain ripens is about equal throughout the whole Dominion from Montreal to Fort Simpson north of Great Slave Lake.

Q. Do you consider the country adapted for stock-raising, and how many months in the year is it necessary to keep stock under shelter?

A. The country, in my opinion, is well suited for stock-raising throughout its whole extent. The winters are certainly cold, but the climate is dry, and the winter snows are light, both as to depth and weight. All kinds of

animals have thicker coats in cold climates than in warm ones, so that the thicker coat counter-balances the greater cold. Dry snow never injures cattle in Ontario. No other kind ever falls in Manitoba or the North-West, so that there can be no trouble from this cause. Cattle winter just as well on the Athabasca and Peace Rivers as they do in Manitoba; and Mr. Grant, who has been living on Rat Creek, Manitoba, for a number of years, says that cattle give less trouble there than they do in Nova Scotia. Horses winter out without feed other than what they pick up, from Peace River to Manitoba. Sheep, cattle, and horses will require less attention and not require to be fed as long as we now feed them in Ontario. Owing to the light rain-fall the uncut grass is almost as good as hay when the winter sets in, which it does without the heavy rains of the east. This grass remains good all winter as the dry snow does not rot it. In the spring the snow leaves it almost as good as ever, so that cattle can eat it until the young grass appears. From five to six months is about the time cattle will require to be fed, and shelter will altogether depend on the farmer.

Q. Could, in your opinion, the arid portion of the Central Prairie region, and particularly that part supposed to be an extension of the "American Desert," be utilized for sheep grazing or any other agricultural purpose?

A. Laramie Plains, in Wyoming Territory, are spoken of by all American writers as eminently fitted for sheep and cattle farming, and our extension of the "Desert" has, from all accounts, a better climate—is at least 4,000 feet lower in altitude, and from the able Reports of Mr. George Dawson (1874), and Captain Palliser (1858), I am led to infer that our part of the "Desert," besides being first-class pasture land, contains many depressions well suited for raising all kinds of grain. Mr. Dawson specially remarks that its soil is generally good, but that the rain-fall is light. Speaking of the worst part, he says: "It scarcely supports a sod," but this tract is not fifty miles wide. This is the winter home of the buffalo, and hence cattle and sheep can live on it in the winter without difficulty. I have seen the Laramie Plains and the cattle upon them—I have examined the flora of both regions, and believe ours is warmer in winter and certainly not so dry in summer.

Mr. George Dawson speaking of this region says:—"In July, of last summer (1873), I saw a band of cattle in the vicinity of the Line, south of Wood Mountain, which had strayed from one of the United States forts to the south. They were quite wild, and almost as difficult of approach as the buffalo; and notwithstanding the fact that they had come originally from Texas, and were unaccustomed to frost and snow, they had passed through the winter and were in capital condition." Comment is unnecessary.

Q. What proportion of the Central Prairie region belongs to this desert?

A. I am unable to answer this in a manner satisfactory to myself, as I have never seen the region in question. Did I know the limits of the Cactus and "Sage Bush," I could answer at once.

Whatever desert region there is, lies between the Souris and the Milk

River on the boundary, and the Qu'Appelle and South Saskatchewan on the north.

Q. Is not the average temperature affected by occasional frosts, so as to injuriously affect agricultural operations?

A. I have partly answered this before, but a few further remarks may be useful.

On the 28th of June, while in Latitude 55° north, at McLeod's Lake, west of the Rocky Mountains, we experienced a severe frost. This frost extended eastward to Fort St. John on Peace River in Latitude 56° , about 50 miles from the Peace River Pass, but no further. No other frost was noticed until Sept. 8th, when the potatoes were killed on the Peace and Athabasca Rivers, but, strange to say, I found them untouched in the Valley of English River, at Isle La Crosse, on the 22nd September. Potatoes were killed by the frost on the 21st of August last year in Manitoba and Saskatchewan country.

This tends to show that when a severe frost does occur it extends over a wide area, and is more severe eastward early in the season.

Mr. Hagar:—

Q. To what depth does the frost penetrate the soil in winter; and does it ever remain in the ground the year through? If so, is it an advantage to the growing crops?

A. Captain Palliser's expedition, which wintered at Edmonton 1858 and 1859, carefully inquired into this important matter, with the following results.—

On the level prairie the frost penetrated to a depth of seven feet during the winter of 1858, while the next winter it penetrated only to a depth of six feet. The former year there was scarcely any snow, which accounts apparently for the greater depth of frost. It may possibly remain in the ground all summer in a swamp, but cannot remain in a fairly dry soil all the year round, except the mean annual temperature falls below freezing point or 32° . It is well known that a coating of moss or straw will keep the frost in the ground until June in Ontario, so that I would not be surprised if I heard that frozen soil was found in Manitoba in July. Captain Palliser found that the ground three feet below the surface kept getting colder until about the 25th of February, when the temperature began gradually to increase, but it was not until the 23rd of May that it had risen to 32° . From this I would infer that the great depth to which the soil is frozen in winter is a great benefit to the growing crops both as a fertilizer and as a retainer of moisture. This appears to be the chief cause why Manitoba never suffers from spring drought.

Q. Do rains fall frequently during the summer months?

A. From what I could gather from residents in the country, I should think that a want of rain is less dreaded than an abundance of it. I heard no complaints on account of the want of rain in the Saskatchewan country, but

I did hear them speak of the lowering of the temperature by having too much; I therefore think the absence of rain should really be a cause for thankfulness, as it is amply compensated for by the depth to which the frost penetrates. If, therefore, its absence prevents one section of the country from producing cereals, its absence is just as certainly the cause of their production in the north.

By Mr. Ryan:—

Q. Is there any other wood than poplar in the Peace River country?

A. Five-sixths of all the timber is poplar, and is invariably a sign of dry soil and good land. Balsam poplar is very abundant on the islands in all the north-western rivers, often attaining a diameter of from 6 to 10 feet, even as far north as Fort Simpson. White spruce grows to a very large size on all the ~~watersheds~~ ^{slopes} of the south bank of the Peace River, on islands ~~in the~~ ^{in the} rivers, and very abundantly on the low lands at the west end of Lake Athabasca. I have often seen it over three feet in diameter, but the usual size is from one to two feet. Banksian pine was not observed on Peace River, but it occurs at Lake Athabasca, and is abundant as you approach the Saskatchewan from the north. Its presence indicates sandy soil unfit for cultivation.

White birch is not abundant along the Peace River, but is common on the Athabasca and Mackenzie Rivers. The Northern Indians make large quantities of syrup from its sap in spring.

These are the most important trees. There are no beech, maple, ash, oak, elm, white or red pine in the country.

By Mr. Hagar:—

Q. What fruits grow spontaneously in the Peace River country and Athabasca regions?

A. The berry of the *Amelanchier Canadensis* (Service Berry of Canadians, Poires of the French Half-breeds and Sas-ka-tum berries of the Indians) is collected in immense quantities on the upper Peace River, and forms quite an article of food and trade. When I was at Dunvegan last summer the Indians and Half-breeds were camped out collecting the berries which were then in their prime (August 6th). Bears are very fond of them, and resort to the sunny slopes of the Peace River at this time in great numbers to feed upon the berries. The Indian women press them into square cakes while fresh, and then dry them for future use, but those intended for the Hudson Bay Company's post are dried in the sun and mixed with dry meat and grease to form pemmican, or are fried in grease for a *dessert*.

Strawberries and raspberries are very abundant in most districts on Peace River, especially at Vermillion.

Another raspberry (*Rubus Arcticus*), of an amber color, is very abundant at Lake Athabasca and up around Portage La Loche and the Valley of the English River. Its fruit is converted into jellies and jams, and gives a relish to many a poor meal.

High bush cranberries (*Viburnum pruciflorum* and *Opulus*) are very abundant in the wooded districts on both sides of the Athabasca and Clearwater rivers and around Lake Athabasca.

Gooseberries and currants of many species are found, but are not much sought after. Blueberries, low bush cranberries, and the cowberry (*Vaccinium Vitis Idæa*), are abundant in particular localities in the above district. Two species of cherries—the bird cherry and the choke cherry—complete the list.

Q. From your knowledge of the country between Manitoba and the Rocky Mountains by Peace River—as to the winter and the snow-fall,—can railroads be operated as well as in the Province of Ontario?

A. I believe that the snow difficulty will *never* be so great as in Ontario, because the snow-fall is more than one-half less throughout the whole region, and the evaporation of the snow caused by the increased dryness of the air more than compensates for the occasional thaws in Ontario. Whether the greater degree of cold will be injurious is beyond my province to determine.

Q. Would not settlement follow railway construction the same as in the Western States?

A. Precisely the same way. No matter how the question is taken up and discussed, the same answer is returned. If the country is opened up, settlement is sure to follow. This has always been so and always will be so. No sane man can deny this.

Mr. Cunningham :—

Q. What will open that great country for settlement, and that forthwith?

A. A number of railways.

Q. Is it wise to postpone "railway construction" through that land?

A. This is a question of finance, and altogether beyond my province to answer.

Q. Is it worth a railway?

A. It is the garden of the Dominion, and worth all the efforts which the united wisdom of the whole Parliament can put forth in its behalf.

Mr. Paterson :—

Q. Do you see any great difficulty in the way of settlers of reaching the Peace River country by water?

A. Yes: they cannot reach it by water. If they go by Edmonton, two watersheds have to be crossed—one between the Athabasca and Saskatchewan, the other between the Athabasca and the Peace Rivers. If they should go by Carlton and thence northward, they would have to cross the watershed between the English or Beaver River and the Saskatchewan, or between the Athabasca and Beaver River.

Q. Is there anything like an unbroken water communication between Manitoba and Edmonton on the Saskatchewan?

A. The only difficulty in the way of unbroken water communication is the Grand Rapids of the Saskatchewan. At present the Hudson Bay Company have two boats on this route—one between Winnipeg and the Grand Rapids—the other from above the Rapid to Edmonton.

Q. Are the waters of the Peace and Athabasca Rivers navigable, and to what extent?

A. The Peace River is navigable from the Rocky Mountains for at least 500 miles by river,—in none of this distance is it less than six feet deep. A canal of two miles would overcome the obstructions at this point. For 250 miles below this there is no obstruction except a rapid, which I think is caused by boulders in the channel. Their removal would probably overcome the difficulty.

The Athabasca is navigable for 180 miles above Lake Athabasca. Mr. Moberly, an officer in the Hudson Bay Company's service, sounded it all the way from Fort Macmurray, at the Forks of the Clearwater and the Athabasca, to Lake Athabasca, and no spot with less than six feet at low water was found. Between Lake Athabasca and the Arctic Ocean only one break exists, but this is 14 miles across by land; after that is overcome, 1,300 miles of first-class river navigation is met with, which takes us to the ocean.

The Hudson Bay Company purpose opening a cart road from Fort Pitt on the Saskatchewan to the Forks of the Athabasca, and contemplate having a steamboat on the Athabasca and the Peace and Slave Rivers. By this means ingress and egress will be obtained, and their goods will be more easily distributed to distant points. This road will be made and the steamer built in time for the trade of 1877.

Q. Does the Hudson Bay Company exercise a good influence over the Indians, and are the Indians peaceable?

A. No matter what has been, or may be said upon this subject, I am satisfied that the Hudson Bay Company has been the chief instrument in bringing about the present satisfactory state of things in the North-West. It is only the *moral* power of the "Northern Traders" which keeps a region nearly as large as Europe in peace and quietness to-day. This power is on the wane, and before it fades away our Dominion Government must step in and take its place, or serious disturbances may arise. A bold, strong front will almost always ensure safety with Indians; but a weak, timid policy brings almost certain trouble. I travelled two years through the whole extent of the continent, and found firearms a necessity in no case. Honest, straightforward conduct is better than weapons.

Mr. Jones :—

Q. Are the settlements of Whites between Manitoba and Little Slave Lake becoming very numerous?

A. The settlements are not numerous, but in the three years which assed between my two trips they had increased wonderfully.

Prince Albert Mission and Edmonton are the two chief objective

points for Whites. St. Albert, nine miles from Edmonton; St. Ann's, about forty miles from the same point, and Lac La Biche are the principal Half-breed settlements.

Prince Albert Mission was established about ten or twelve years ago, by the Rev. Mr. Nesbitt, a minister of the Free Church. It now boasts of a population of over sixty families, has three grist mills, one of which is driven or rather is to be driven, by steam. (The whole of the machinery was drawn across the plains last summer and arrived at the Mission in September.) Bishop Maclean resides there, and, besides a Presbyterian, there is also a Wesleyan Minister. Not many years ago it was an open question whether wheat would succeed there. Last year, according to the Rev. George Muedougall, 30,000 bushels were grown there. The above extract was taken from the *Montreal Witness*. I expect 3,000 bushels is meant.

The other settlements are, no doubt, thriving just as much, but I have no personal knowledge. Last spring two more settlements were commenced; one at the crossing of the South Saskatchewan and the other sixty miles north of Carleton. In both, the various cereals were raised with very satisfactory results. At Duck Lake, between the two Saskatchewan, I saw land ploughed up last fall, which will be sowed and planted next spring.

Q. How many settlers are there now on the Saskatchewan, and how did they reach there?

A. I have no means of knowing, but there are far more than outsiders believe. There seems to be a quiet exodus of Half-breeds from Manitoba to the Saskatchewan, which will increase in coming years, and these men will be the pioneers of the North-West—moving inwards as settlements encroach on them until they reach and spread beyond the Peace River. Even at the present time *all* the trade done at Dunvegan is with Half-breeds of the hunter class.

They reach the Saskatchewan by cart road from Manitoba. The distance is about 550 miles from Winnipeg to Prince Albert Mission. It is 890 miles by cart road to Edmonton, and from thence to Dunvegan by Fort Assiniboine and Little Slave Lake from 300 to 400 miles.

Q. Would you advise parties to settle on the Peace and Saskatchewan Rivers at present?

A. Certainly not. I believe that parties should know the facts, and then if they decide to go into the interior on their own responsibility let them go. I would, however, advise any man who had a poor prospect of getting ahead in Ontario to go to Manitoba. And yet the class that Manitoba wants is not the poor weaklings of Ontario, but men of pluck and determination from all nationalities, and to these she can hold out inducements second to none in America.

Mr. Ryan:—

Q. Is the water good in the Peace River country?

A. The waters of the Saskatchewan, Athabasca and Peace Rivers are

never clear, and in the spring of the year are very muddy. All other waters in the Peace River country are good. I never saw a brackish pool in the whole region.

Q. Are the valleys of the Saskatchewan and Peace River healthy for white men?

A. During the years 1872 and 1875, I never saw a sick white man or Half-breed. My own health was so much improved by my first trip that I have been a new man ever since. Meat will keep fresh an astonishing time, and this is one of the surest tests of the purity of the atmosphere.

The Indians of Peace River are fading away, and will soon disappear. Scrofulous diseases of various kinds, and pulmonary diseases produced by insufficient clothing are doing their work, and the scanty population is lessening every year.

Q. Does goitre prevail among the white or Half-breed population to any extent?

A. The only place I noticed it was at St. John, on Peace River; it seemed confined to the Half-breed women, and was said to be caused by drinking the river water. Mr. King told me he was quite sure drinking the river water caused it.

Q. Is there any game?

A. The moose is still abundant on both sides of the Peace River, and the wood buffalo is still found between the Athabasca and the Peace River about lat. 57°. From 500 to 1,000 head is the estimate of the hunters. Black bears are very numerous on the upper part of Peace River, and furnish the chief food of the people in July and August. Cariboo are north and east of Lake Athabasca, and are the chief food of the Indians and Half-breeds of that region. Rabbits are in immense numbers wherever there is timber, and are easily taken. Waterfowl are beyond computation, during September, in the neighbourhood of Lake Athabasca, and large flocks of Canada geese are found on Peace River all summer. Lynx, beaver, martin and fox make up the chief fur-bearing animals.

Q. Are there any mineral deposits in the country? If so, state the different kinds.

A. Large deposits of coal have been observed, by Mr. Selwyn, on the Saskatchewan between the Rocky Mountain House and Victoria, a distance of 211 miles. He speaks in one place of having seen seams 20 feet thick, and in his report for 1873 and 1874, he gives a photograph, on page 41, of this seam.

Rev. Mr. Grant, in "Ocean to Ocean," speaks of a seam of coal on the Pembina River—a tributary of the Athabasca—ten feet thick, and from which they brought away specimens that were afterwards analysed by Professor Lawson, and found to contain less than 3 per cent. of ash.

While on my trip to Peace River, in company with Mr. Horetzky, in the fall of 1872, I discovered coal in large quantities in the bank of one of

the rivers which flow into Little Slave Lake. It was also seen in small quantities in a number of other localities in the vicinity of the Lake. It is also reported from the upper part of Smoky River, and I have seen it in small quantities on the upper part of Peace River and its tributaries on the right bank. I observed no indications of coal below Smoky River, but Sir John Richardson speaks of lignite being abundant on the Mackenzie.

Clay ironstone is associated with the coal wherever it has been observed, although possibly not in paying quantities. Coal, then, and ironstone may be said to extend almost all the way from the boundary to the Arctic Ocean. Gypsum of the very best quality, and as white as snow, was seen at Peace Point on Peace River, and for a distance of over 20 miles it extended on both sides of the river, averaging 12 feet in thickness. Sir John Richardson says in his "Journal of a Boat Voyage to the Arctic Ocean," Vol. I, page 149, that he found this same gypsum associated with the salt deposits on Salt River about 70 miles N.N.E., from Peace Point, and he infers that the country between is of the same character.

Sir John examined the salt deposits at Salt River and found that they were derived from the water of salt springs, of which he found a number flowing out of a hill and spreading their waters over a clay flat of some extent. The evaporation of the water leaves the salt incrusting the soil, and in some places forming mounds out of which the pure salt is shovelled.

For many miles along the Athabasca below the Forks there are outcrops of black shale from which liquid petroleum is constantly oozing. At various points, at some distance from the immediate bank of the river there are regular tar springs, from which the Hudson Bay Company get their supply for boat building and other purposes. The tar is always covered with water in these springs, and something like coal oil is seen floating on this water. Besides those mentioned, other springs are known to exist on the Clearwater, a tributary of the Athabasca, and on Peace River, near Smoky River, and Little Red River on the same stream. Sulphur springs are frequent on the Clearwater, and large metalliferous deposits are said to exist near Fond du Lac on the north shore of Lake Athabasca. Gold is found in small quantities on the upper Peace River, but it is of very little account. Immense quantities of first-class sandstone occur for over 300 miles along Peace River, and other minerals will be discovered when the country is better known.

Q. Have you bestowed any attention upon the destruction caused by grasshoppers to agricultural operations—have you formed any opinion on the subject which you can furnish to the Committee?

A. I have had scarcely an opportunity to examine into the matter, but from inquiries which I made while in Manitoba last autumn, I am satisfied that no damage of any account will be done by them next season.

Grasshoppers from their very nature cannot be yearly visitors, but are almost certain to be occasional ones. It seems to be a law that insect pests

eventually breed their own destruction. This seems to have been their history in the past, and I believe will be the same in the future. A few roused the South Saskatchewan last summer, but none have ever been seen on Peace River. Owing to the belt of timber which intervenes between it and the Saskatchewan, they can never injure that fine country, nor will they ever do much damage in the Saskatchewan country, as they like to move towards the east and north, which takes them away from it. I know of no mode of prevention except tree planting, which will be at best a slow process.

Q. What was the nature of your observations on the flora of Peace River, and what results did you obtain?

A. At six points, as it were, I made a section by enumerating all the flowering plants in the vicinity. These points were Hudson's Hope, just east of the mountains; St. John's, 60 miles below; Dunvegan, 120 miles further down; then Vermillion, about 300 miles lower down, then Little Red River, 100 miles further down, and lastly at Lake Athabasca. As will be seen the flora of the whole river is much like that of Central Ontario, and of the prairie region. It may be as well to remark that we can only deduce the temperature of the growing season from the vegetable productions. The following table gives the result of the botanical examination in a very condensed form:—

	Total.	Belleville.	Quebec.	West of Mountains.	Western Plains.
Hudson's Hope	211	136	7	17	51
St. John	248	161	3	6	78
Dunvegan	246	160	2	5	79
Vermillion	159	112	2	1	44
Little Red River	128	88	1	0	39
Lake Athabasca	245	186	7	2	50

The only plants that show any signs of a boreal climate are those from Quebec. The two at Vermillion were Yellow Rattle (*Rhinanthus Cristagulli*) and High Bush Cranberry (*Viburnum pauciflorum*.) The most prominent feature in the whole region was a richness in the soil and rankness in the vegetation never seen in Ontario.

Where Peace River leaves the mountains, it is at least 800 feet below the level of the plain. At Fort Chipewyan, on Lake Athabasca, the country is on a level with the water.

OBSERVATIONS ON BRITISH COLUMBIA.

March 25, 1876.

Professor MACOUN again appeared before the Committee.

Q. Have you visited Vancouver Island; and, if so, can you state the area of the Island, and what proportion of it is adapted for agricultural purposes?

A. I have visited the Island, but only that portion in the neighborhood of Victoria.

The Island is about 300 miles in length, with an average breadth of about 60, and probably contains 20,000 square miles. Whatever soil I saw was good, but the surface is so much broken by rock that it is altogether impossible to tell the amount of good arable land on the Island. There is no doubt but that the day will come when Vancouver will support a large population—partly agricultural and partly engaged in mining, lumbering and fishing. The land which is under cultivation around Victoria at present consists of rich bottom land much like the patches of rich soil found among the Laurentian rocks of Ontario. It is generally wet in spring, but, by a proper system of tillage, seed could be sown much earlier than it is at present. When I reached Victoria, May 2nd, last year, very little spring ploughing had been done, and yet apple trees were in full bloom, and in some places grass was a foot high. The climate is wet in winter and spring, but the summer is dry and very pleasant. Vancouver wants men of pluck and determination—men who will work and who will respect the worker—men who are patriotic enough to speak respectfully of their adopted country—men who, instead of calling on Jupiter, will put their own shoulders to the wheel and push on the car of progress, as we do amidst the snow and frosts of the East.

Vancouver can *never* become an agricultural country; but, with a different class of settlers from those that do the loafing and the grumbling in Victoria, it will become in time a very valuable portion of the Dominion.

Q. What is the climate of British Columbia as regards the various sections of the country traversed by you last year?

A. The climate of British Columbia, west of the Cascades, including Vancouver Island and Queen Charlotte's Islands, is wonderfully like that of Great Britain, except that the summers are very much drier. A warm current of water flows *down* the west coast of America, just as the Gulf Stream flows *up* along the coasts of Great Britain, and in its passage warms up the coast from Alaska to the Columbia, and gives to the western slope of the Cascades those forests which are the wonder of the world. The vapour rising from the warm sea is blown inwards, and, becoming condensed by the cooler air of the land, falls in rain or fog upon the slopes and valleys and produces the moist climate of the winter and spring. During the summer months the temperature of the land and sea are slightly reversed, and the land, instead of condensing the vapour, dissipates it—at least, in the neighborhood of Victoria.

The Valley of the Fraser below the Cascades is included in this region and has a climate much like that described above, except that I would expect a wetter summer than there is on the coast.

Twenty-five miles above Yale we pass the outer Cascade Range, and in doing so pass from almost constant rain to the opposite extreme. About 12 miles higher up we pass over another mountain and reach a region of complete aridity.

At Lytton we are fairly in the interior basin, and from here to Clinton the waggon road passes through a region where nothing can be raised except by irrigation, and this means can only be employed to a limited extent.

The road passes through about 70 miles of this country, and during the greater part of the year the ground is scarcely ever moistened by a shower. The river flats and lower hillsides are almost without vegetation. Scarcely anything of a woody nature except "Sage Bush" can grow, but as you ascend the hills bunch grass begins to form a sward, and after attaining a height of about 2,500 feet above the sea the lower limit of the Douglas pine is reached, and above that the forest is almost continuous. It is upon the slopes between the forest and the dry valleys that the splendid grazing lands of British Columbia are to be found. The Nicola Valley is of this nature, and the only soil in it fit for farming purposes, is found in the narrow valley along the river, or on the "benches," to which water can be brought for irrigation purposes. The whole region, from the American boundary on the Columbia by Okanagan and the Shuswap Lakes, Kamloops and north-westward across the Fraser, to and beyond the Chilcote Plains, is arid, and to a great extent only suited for a grazing country. Taking this section as a *whole*, it is only fit for pasture, but all the level portions on which water can be brought, will produce enormously, as the soil everywhere is good, being only deficient in moisture. Owing to the light snow fall and the comparative mildness of the weather, cattle winter out without difficulty.

The waggon road leaves this section at Clinton and passes over a very elevated portion as far as Soda Creek on the Fraser. This is a very rough section, but still it is far from being barren; much good land is scattered through it, but not continuously. It is rather a risky business to winter stock on these hills, but still it is done. The greater part of this tract is covered by forest, and hence has a greater rain and snow fall than the lower country. The spring, too, is much later, being nearly three weeks behind that of the Nicola Valley. The spring in the latter valley seems to be about as early as that on the Lower Fraser. Vegetation is about as far advanced on the 1st of May in the Nicola Valley as it is at Belleville, Ontario, on the 24th.

In the vicinity of Quesnelle the land is comparatively good, and irrigation is unnecessary, although many are of the opposite opinion. Mr. Selwyn brought home with him wheat, oats, barley and timothy which were raised in the neighborhood, and certainly they were as fine samples as could be produced anywhere.

Taking a retrospective view of the country from this point, I must say that British Columbia does *not* present a field for the agricultural immigrant at present, but will when her mining interests are considered of more importance than at present. British Columbia above the Cascades can *never* export her agricultural products with profit, and whatever is raised in the country must be consumed there. That there is enough

good land to raise all the food necessary for a very large mining population is certain, and that the day will come when one will be there is just as sure.

Between Quesnelle and Fort St. James, on Stewart's Lake, is a wide extent of country (180 miles) with a very diversified aspect, and a cool, moist climate. The Valley of the Nechaco River is very wide and perfectly level. On both sides of the river are beautiful prairies and poplar copse wood, and at the time we passed (June 15th) through it, everything looked beautiful and inviting.

I cannot speak with certainty of the absence or occurrence of summer frosts, but if they should not be severe this would be one of the finest tracts (Nechaco Valley) in all British Columbia.

The whole country above Quesnelle seems to have a cool, moist climate, and to be more like Quebec in its productions than Ontario. Fort St. James, on Stewart's Lake—the highest point in the district—has always been known to produce garden vegetables, potatoes, barley and oats, but whether wheat has ever been raised or not I am unable to say. All this region is an elevated plateau with broken, rocky hills at intervals, but scarcely anything which could be called a mountain. Should the railway pass as far north as the Neshaw, many fine settlements would spring up along the river.

Q. Are agricultural pursuits attended with greater expense in British Columbia than in the Province of Ontario?

A. Yes. Labour is much higher, usual prices being from \$40 to \$60 per month. There is no more difficulty in cultivating land in British Columbia than in Ontario, but the price paid for the labour performed is too high. Where irrigation is required the expense must be greatly increased, but the yield is very great in such locations.

Q. Does Chinese labour reduce the prices paid for White labour or not and discourage European immigration?

A. Whether Chinese labour reduces the price of White labour I am unable to say, but that the Chinese monopolize many lines of manual labour is certain and by so doing prevent the immigration of White laborers. They are the market gardeners, laborers of all descriptions, house servants, cutters of wood, laundry-men, &c., to the whole Colony. One result of this is that the country is not properly developed. These people are only sojourners in the land, and, like many others I might mention, remain only for a time and carry their gold away with them.

What British Columbia wants is a class of men who are not above manual labour, and who have made up their minds to remain in the country and become permanent settlers. Those men can only be acquired by holding out proper inducements to them for settling in the country. One means to accomplish this would be to put a tax on all Chinamen for the privilege of pursuing their various avocations throughout the country, and another would be to lessen the cost of living. As matters are conducted there at present, a

man would need to have a small fortune, or a very large income, to support a large family in comfort. Were there more workers and fewer drones this (cost of living lessened) would soon be brought about, but as it is, the drones must live on the workers, and everything costs too much.

Q. Can you inform the Committee what proportion of British Columbia is covered with timber and describe the various kinds?

A. That section spoken of as being west of the Cascades and including Vancouver and Queen Charlotte's Islands, is covered with, probably, one of the finest forests in the world. Chief amongst the trees in this section is the Douglas Fir (*Abies Douglasii*), which is the chief forest tree, and which is used throughout the country for building purposes, and for export in the form of deals and spars.

White Cedar (*Thuja gigantea*) is another giant, and in the valley of the Fraser and up the coast attains to an immense size. The Indians use this wood altogether in the construction of their houses, and in building those large canoes which are the wonder of the eastern people.

The other trees are a species of Yew, another of Alder, two species of Fir (*Abies Menziesii* and *grandis*); two species of Pine (*Pinus contorta* and *monticola*); two species of maple (*Acer macrophyllum* and *circinatum*); Hemlock Spruce (*Abies Mertensiana*) is a common tree on the mainland; while a species of Oak (*Quercus Gayrrana*) is abundant on the Island, but has not been detected on the continent. An evergreen tree (*Arbutus Menziesii*) is quite common along the coast of the Island, and both summer and winter its foliage contrasts finely with that of the sombre-hued Douglas Fir.

In the second, or arid, district, a Pine (*Pinus ponderosa*) takes the place of the Douglas Fir of the coast, and is a very valuable tree, growing to a large size, with clean trunk, and resembling the Red Pine of Ontario very much. The tops of the lower mountains and the sides of the higher ones support a heavy growth of Douglas Fir, but it is far from being the beautiful tree of the coast.

The timber of the third region is not so good, and consists principally of Poplar and Black Pine (*Pinus contorta*) with occasional groves of Douglas Fir on the higher hills. Black and White Spruce with a little Balsam Fir make up the remainder.

Q. How do the valleys in British Columbia compare in extent with our general views of valleys?

A. The British Columbian valleys are more of the nature of ravines (I speak of those in the dry country) than anything else, but there are many level terraces, ("benches") which may be termed valleys, scattered all over the country traversed by me. River valleys in British Columbia, except in the third district, have no existence. Every river seen by me in the middle region ran at the bottom of a gorge, usually called a Canyon, and had not one foot of a valley. The valley of the Lower Fraser is a true valley of deposition, and is altogether composed of the alluvium brought down by the river; one drawback in connection with it, is the destruction caused every

year by the river cutting into its banks and wasting the land along them. At Sumas this is going on so fast that houses have had to be removed already.

Q. What is the nature of the soil in the valleys? Do you find rich alluvial deposits in the valleys, or are they covered with the debris of rocky fragments washed from the mountains?

A. The soil in the valleys, whether they are narrow or wide, "benches" or otherwise, is always good. The valleys are partly alluvium and partly the detritus washed down from the hills. Apparently there was a time when the rivers stood much higher than they do now, and the "benches" which show along their sides were then about on a flood level with the river. Since then the river has successively broken through the barriers which confined it, and left these terraces ("benches") at various heights. The slopes of all the hills are more or less grassy, and the valleys along their base have scarcely any loose stone upon them in consequence.

Q. Have you a knowledge of the temperature? If so, how does the thermometer range during the summer and winter months both on the coast and inland? Are summer frosts prevalent and injurious to crops?

A. I was in Victoria from the 12th to 28th December, 1872, and from the 2nd to 14th May, last year. While I was in Victoria in 1872, a fall of snow and slight frost took place, and the papers came out next day with an account of the extraordinarily cold weather, and I was led to infer from that, that such weather was not common in winter. Jessamine, roses, and violets were in flower, and everything betokened a mild winter. The summer on the coast is everything that can be desired, being dry and pleasant.

In the arid region the spring is about as early as on the coast; the winter is comparatively cold, with very little snow, and the summer is dry and hot. Summer frosts can do no harm in these regions.

From Clinton upwards the winter is very cold with a considerable snow-fall and frosts extending through the month of May, and possibly into June. I heard of no injury from frosts at Quesnelle or any point on the Fraser, but noticed frost on the grass on the 27th May, at or near Soda Creek. From this date until the 4th June, the weather kept cold, but there was no frost. On the 28th June at Macleod's Lake, Lat. 55° , there was a severe frost, and many wild flowers were injured, but nothing was hurt in the garden. This frost extended to St. John's, east of the mountains, but no further.

One important point in connection with spring or summer frosts should be kept in mind; that swampy soil is more liable to injury from frost than dry soil, and a frost occurring in a swampy region is no proof that the surrounding country is liable to suffer from such frost. We all know that in the vicinity of swamps we have slight frosts in many parts of Ontario even as late as the beginning of June, and numbers of farmers can point out spots in their wheat fields injured by them.

I would expect spring frost in the upper region, but have no knowledge of the fact, other than what I before stated.

Q. What distance from its mouth is the Fraser River navigable for seagoing vessels?

A. I cannot say; but the tide flows up as far as Fort Langley and I should judge that vessels could sail up that far if necessary. The Victoria steamer runs to Westminster twice a week, and a steamer from the latter place goes up the river to Yale twice a week. The distance from the mouth of the River to Yale is over 100 miles. At this point navigation ceases on the Lower Fraser.

Q. What extent of arable land is drained by the Fraser and its tributaries?

A. All the information given in my preceding answers regarding the soil belongs to this question. All the land I saw in British Columbia was drained by it or its tributaries.

Q. What are the facilities for reaching the cultivable plateaux from the seaboard?

A. From Victoria to Westminster and Yale by steamboat; then by waggon road along the canyons of the Fraser and Thompson to Spence's Bridge on the latter river. From here a "trail" leads up the Nicola Valley for an unknown distance. Thirty-two miles beyond this point, at Cache Creek, a road leads to Kamloops and the waggon road passes on to Barkerville in Cariboo. Except a branch road passing from Clinton to Lilloet on the Fraser, I know of no other roads in the country. Had the \$750,000 offered by the Dominion Government been accepted by the British Columbians, and expended judiciously on roads, it would have done more towards opening up the country than a railway on Vancouver can possibly do.

Q. Where are the present centres of population?

A. Victoria and Nanaimo are the chief places on the Island; and New Westminster, Yale, Clinton, Kamloops, Quasalla and Barkerville are the only places of any account on the mainland. Burrard's Inlet may have a considerable population, but I have no means of knowing.

Q. Are the extremes of cold and heat inconvenient or oppressive to Canadian or European settlers, or injurious to health? Is the climate conducive to longevity?

A. The climate of the coast is so much like that of England that there should be no better climate for natives of Great Britain; while that of the mainland above the Cascades ought to be exactly suited to Canadians, as the climate is nearly the same as we have in the east except that it is drier for the most part. I think that on the whole British Columbia has a very healthy climate and one that would tend to long life.

Q. What natural fruits have you discovered in British Columbia, and could fruit be cultivated successfully?

A. Various species of raspberries, currants, gooseberries, strawberries, and blueberries are found throughout the country. The Oregon grape (*Berberis aquifolium* and *nervosa*) extends all the way from Vancouver to Lat. 55° in the interior, and to Alaska along the coast.

Perhaps there is no better place in the world for raising fruit than Victoria. Apples and pears of a very large size are produced in such abundance that the former can hardly be sold at any price. The orchards are all in the low

wet grounds and will begin to decay in a few years, whereas if they were planted among the rocks where the oak grows, the trees would live longer and probably produce better fruit. I can see no reason why grapes could not be produced in abundance on any part of Vancouver, if the summer temperature is high enough. After the railway is built Vancouver will send immense quantities of fruit into the interior, as it can be raised to any extent and of every kind.

Q. Are there any extensive fisheries on the rivers or coasts? What kind of fish are caught; are they exported and to what extent?

A. From the boundary line to Alaska there is not a bay, fjord or river that is not teeming with fish. Salmon are caught in great numbers, both in spring, summer and autumn. Last spring large quantities of fish were being caught at New Westminster for export. An establishment for the canning of salmon has been established there, and it is to be hoped that this is the beginning of a very prosperous business. Salmon ascend the Fraser all the way to Stewart's Lake, which they reach about the month of August; they likewise ascend the Skeena into the Babine Lake, and are caught by the Indians and the Hudson Bay Company's people and dried for winter's use. The salmon of Babine Lake are both larger and fatter than those caught in Stewart's Lake, and are therefore brought across to supply Fort St. James with food in winter.

Salmon 700 lbs. weight are often caught in the above-mentioned lakes, and every lake and stream in Upper British Columbia teems with trout of different species, besides many other varieties of less value.

Of salt water fish I know but little, except one small one—the "Houllican"—which I saw in the Fraser in myriads last spring. Many were lying dead along the river and served as food for various animals. Halibut were very plentiful in Victoria, and many other sea-fish of which I did not learn the names. I believe the fisheries of British Columbia, if properly conducted, would eventually be as profitable as those of the Gulf of St. Lawrence.

Q. Do you know from actual observation whether any intertropical currents and prevailing winds flowing along the coast of Vancouver and British Columbia have a tendency to ameliorate the climate in a similar manner as the Gulf Stream affects the Maritime Provinces?

A. I know nothing of it from actual observation, but that it is so is a demonstrated fact.

About the island of Formosa, on the eastern coast of China, a current analogous to the Gulf Stream is observed moving to the north east. It passes Japan, and part of it enters Behring's Sea and warms the northern part of Alaska, while the other part is deflected farther to the east and passes down the West Coast of America, carrying with it the heat necessary to produce the exceptionally warm climate of Vancouver and the West Coast generally. It is this stream which gives the heat and moisture that are the cause of the magnificent forests found from Alaska southwards. The forests of Norway

and those of Western America are the product of the two great currents—the "Gulf Stream" on the east and "Kuro Siwo" on the west, and sceptics may rest assured that the value of the West Coast timber far exceeds that of the Eastern Provinces.

Q. What are the mineral interests of British Columbia? Are they developed to any extent? Would encouragement to mining interests develop agricultural interests and increase immigration to the Province?

A. Gold has been found in paying quantities at Okanagan on the American Boundary,—at Shuswap Lakes—at Cariboo—on the Ominica—on the Stickeen—and latterly at Cassiar, and an examination of the map will show that all this gold is produced from mountains lying between the Rockies and the Cascades. Copper, iron, and silver have been found at various points in the Cascades, and coal is abundant on Vancouver and Queen Charlotte's Islands. I just mention these and ask: Are these all or are they merely indications of what is to come? After having travelled over 1,000 miles through British Columbia, I can say with safety that there will yet be taken out of her mines wealth enough to build the Pacific Railway. Consider that gold has been found in paying quantities, at various points, along a northwest line for more than ten degrees of latitude, before you decide that the foregoing statement is that of an enthusiast.

Cariboo is really the only point where the gold interest has been developed. Coal is mined at Nannaimo, and these constitute the developed mining interests of British Columbia. Gold has been found on Vancouver itself, and there is no reason why it should not pay for the working.

The only way that British Columbia can be developed is by encouraging and stimulating her mining interests. Political Economists may theorise, and interested parties may praise or depreciate, but the stern reality remains: —*There can be no permanent prosperity for British Columbia without a development of her mining interests.* As a necessary corollary to this, there would be an influx of agriculturalists, and commerce following in the footsteps of both, would again awake the slumbering energies of her present population, and cause them to cease their grumbling and go to work with a will to develop the resources of their adopted country.

Q. Can roads connecting the different settlements be built other than along the valleys of the rivers, and were the present leading thoroughfares built by Government or private companies?

A. In most cases roads can be built to connect the various settlements without following the valleys of rivers. Only part of the main road is built along the Fraser and Thompson Rivers, and parties who know the country say that there are better routes to the upper country than the one now in use.

All the roads in Vancouver and on the mainland have been built by Government, but the miners say that they paid for the latter. I believe the two bridges on the waggon road were built by private companies, but they are now in the hands of the Government.

Q. In view of the fact that some thousands of miners and lumbermen are employed in British Columbia, and that there are in addition to these some forty thousand Indians, would not the prohibition of the manufacture, importation and sale of intoxicating liquor in that country be a blessing to it especially.

A. Most assuredly it would, and I might say that it would be a benefit to Old Canada as well; for it is a well-known fact that many promising sons of Ontario and the Eastern Provinces are at this very time so enthralled by the drinking usages which prevail to such an extent in the Pacific Province, that the clear-headedness of former years seems to have left them.

HONOURABLE MR. SUTHERLAND'S EVIDENCE.

THE NORTH-WEST AND AGRICULTURAL SETTLEMENT.

COMMITTEE ROOM, HOUSE OF COMMONS, MONDAY, April 3rd, 1876.

Honourable JOHN SUTHERLAND, Senator, of Kildonan, Manitoba, appeared before the Committee.

Q. How long have you resided in the North-West, and in what part of the territory have you chiefly resided?

A. I have been in the North-West all my life. I was born within the corporation of Winnipeg. My age is 53 years. I am a practical farmer.

Q. Do you consider the North-West a desirable place for residence for a practical agriculturalist.

A. I do. From my long experience there, and from what I have seen in other Provinces, I have come to the conclusion that the soil, climate and other natural advantages are conducive to successful farming, and that a poor man can more easily make a living there than in other parts of the Dominion.

Q. What is the usual depth of alluvial deposits on the prairies and on bottom lands? Are the natural grasses nutritious, and can stock thrive through the winter without a supply of coarse grains?

A. The usual depth of alluvial deposit on the prairie is about two and a half feet, and on bottom lands from two and a half to twenty feet. The natural grasses are very nutritious, and cattle can be wintered without any coarse grain, neither is it customary to feed any grain except to milch cows or stall-fed animals.

Q. What is the average yield per acre of prairie grass?

A. The usual yield of prairie grass when cut into hay is an average of from three to four tons per acre. It usually grows about five or six feet high, and, although coarse, is very nutritious.

Q. Do you consider the North-West adapted for dairy purposes? Have you a large area of natural meadows producing hay, and at what price per ton can it be cut and cured?

A. I consider the North-West as very well adapted for dairy purposes, as we have many miles of natural meadows throughout the country, and hay can be cut and cured for about \$1 per ton. We have five or six varieties of grasses that are good and well adapted for stock feeding, while a few others are not so suitable.

Q. Are summer frosts prevalent so as to injure the growth of crops? Have you frequent refreshing showers of rain in spring and summer, and what is the average depth of snow in winter?

A. We have occasional frosts; generally one frost about the first of June, but seldom severe enough to do any material injury to the growing crops, and showers are frequent during spring and summer. The average depth of snow throughout Manitoba is about 20 inches, and is quite light and loose.

Q. Would it be advisable for an Ontario farmer contemplating settlement in the North-West to take with him stock and farming implements and, if so, of what kind or description?

A. I would consider it advantageous for a farmer to take improved stock, but not agricultural implements, as they can be procured there at a reasonable rate. They are partly procured from the United States and partly from Ontario. I think the grade cattle might be got in cheaper from Minnesota than from Ontario.

Q. Can good spring water be easily obtained in the Province of Manitoba, and at what depth? Is there sufficient moisture to render the soil productive, and are you subject to severe summer droughts?

A. In many parts of the Province there are natural springs and creeks on the surface, and good water can be obtained by digging about twelve feet, while in other parts it may be necessary to dig some fifty or sixty feet. I recollect only two seasons which were very dry, but not so much so as to prevent having fair average crops, and in the absence of showers there is sufficient moisture in the earth to render the soil productive.

Q. To what depth does frost penetrate in winter? Does it continue in the earth after the commencement of vegetation, and what effect has this moisture upon the growth of crops?

A. The frost penetrates on exposed places to the depth of from three to four feet, that is, where the earth is not covered at all with snow. Where it is covered with snow it is seldom frozen deeper than eighteen inches. Vegetation begins and progresses before the frost is all out of the ground, and we generally begin sowing when it is thawed to the depth of six inches, at which time the surface is perfectly dry. We believe this frost helps the growth of crops, owing to the heat of the sun by day causing a continual evaporation from the underlying strata of frost.

Q. Do you consider the country healthy? Is it subject to fevers and epidemics?

A. I consider the country healthy, and we have not been subject to any epidemic. We had fever in Winnipeg last year, but none in the country places. It was brought into Winnipeg, and it owed its continuance there, no doubt, to overcrowded houses and insufficient drainage. We never had small-pox in our Province. As a rule I think the country is very healthy.

Q. What is the average yield per acre and price per bushel of wheat, oats, barley and peas? Are the soil and climate suitable for the culture of root crops?

A. The average yield and price of grain is as follows:—

Wheat, about 30 bushels per acre, price \$1.00.				
Oats, " 40 " " 30c. to 40c.				
Barley, " 35 " " 60c. to 70c.				
Peas, " 50 " " 60c. to 70c.				

The soil and climate are well adapted for growing root crops. Our potatoes are pronounced the best in the world. Indian corn is not extensively cultivated, and I think the large kind could not be cultivated to advantage, but the smaller kind might, and I think could be profitably grown.

Q. Have you a ready market for your produce, or do you export any?

A. We have had a ready home market for the last fifteen years for all our surplus produce, consequently we do not export any farm produce.

Q. Do you know any thing respecting the ravages of the grasshoppers, and do you think that settlement and cultivation will have a tendency to banish this plague?

A. I think that extensive settlement will prevent the ravages of the grasshoppers, and we have good reason to believe that we will be exempt from them during the coming season, as there were no deposits of eggs in the Province last year, and in all probability we will be relieved from that plague for many years to come. To my own knowledge the Province was not affected by grasshoppers for forty years previous to 1867, since which date we have had them off and on about every two years, or each alternate year.

Q. How are the fields fenced for the protection of crops, and with what material?

A. The fences are composed of posts and poles of spruce and poplar, the latter of which, with the bark removed, will last twenty years. Pine and basswood lumber are also used, the former being from \$20 to \$60 per thousand feet.

Q. What kind of lumber is used for fuel, and is the supply sufficient for a large population?

A. Poplar and oak are chiefly used, and are in sufficient quantity to supply the present demand, but I fear there is not enough to supply a very large population, in which case there might be a scarcity of hard wood, but plenty of poplar and tamarac, the former of which is reproduced very rapidly. Coal is not known to exist in the Province of Manitoba, but is said to be found about thirty miles west of the boundary of the Province.

By Mr. McNab :—

Q. Is it customary in your Province to plough in the fall, and do you consider it advisable ?

A. It is customary, but I have generally found it necessary to cultivate the soil in the spring before sowing to prevent the growth of weeds.

Q. Do you consider the Province of Manitoba well adapted for sheep-raising ?

A. I do ; and from my experience I have found it profitable.

By Mr. Cockburn :—

Q. You have given the average crops of wheat per acre, but what is the largest yield known, and the maximum for large yields ?

A. I have raised sixty bushels of spring wheat per acre, weighing sixty-six pounds per bushel, the land having been measured and the grain weighed carefully. I have also received reliable information to the effect that seventy (70) bushels of wheat have been produced from one bushel sown.

By Mr. McNab :—

Q. In the event of a considerable immigration going into the Province for the next few years, do you think that there is danger that farm produce would not find a ready market ? and

By Mr. Bannatyne :—

Is it not your opinion that the North-West Territories will furnish a sufficient market for all surplus grain that can be grown for some years in the Province of Manitoba ?

A. It is my opinion, in the event of a considerable immigration going into the Province of Manitoba, and also into the North-West Territories, that those immigrants will in the first instance be consumers, at all events for the first year after their arrival ; and if, as I hope, the construction of the Canada Pacific Railway is carried on, I do not doubt that these circumstances combined, will absorb our surplus produce until we shall have an outlet for exportation. I may also add that the fur trade has, for many years, consumed a large proportion of our surplus produce, and I expect it will continue to do so for years to come in the North-West Territories.

MR. HENRY McLEOD'S EVIDENCE.

OBSERVATION OF A SURVEY IN THE NORTH-WEST.

COMMITTEE ROOM, HOUSE OF COMMONS,

OTTAWA, April 3, 1876.

HENRY McLEOD, Esq., Civil Engineer, appeared before the Committee.

Q. Will you please state to the Committee if you have been in the North-West Territory, in what capacity, and how long did you remain in the Territory?

A. I have been in the North-West Territory in charge of surveys made for the Canadian Pacific Railway since last spring; I have been in charge of the surveys made from Fort Pelly to the Jasper Valley, Rocky Mountains; I remained in the Territory nearly two years, and have been 30 years in Canada.

Q. What parts of the country have you travelled over in the North-West, and have you made particular observations of the soil?

A. I have travelled over the country, from 50 miles east of Rat Portage, Lake of the Woods, to the summit of the Rocky Mountains, about 1,250 miles, and have made daily records of the quality of the soil travelled over. Taking the country from Winnipeg to Fort Pelly by the usual trail, and from Fort Pelly to Lac Ste. Anne, 50 miles west of Edmonton, along the line of the Pacific Railway, I estimate that the proportion of soil suitable for settlement is 42 per cent. moderately fair soil 15 per cent., and poor sandy, clay and gravel, 42 per cent. The land I consider suitable for settlement is very much superior to any lands now to be had in Ontario; the luxuriance of the grass and pea vine to the south and east of Edmonton, exceeds anything I ever saw. The soil consists of rich black loam of various depths, overlying clay and gravel. I have been told by settlers from Ontario, that they prefer the natural grasses for hay to the best timothy; they say that stock thrives better upon the natural hay. My horses lived entirely upon the grass found every day, from the end of May to the middle of October, and did their daily work of from 15 to 30 miles. Before and after those dates they got a few pounds of oats or barley. —Only three horses were lost, and that on the return trip from the Rocky Mountains. The clay and sandy soil is suitable for grazing; I saw no part of the country entirely deficient of pasture.

Q. What kind of timber is chiefly used for fuel, and is the supply sufficient for ordinary purposes to guarantee extensive settlements—what kind of lumber for building purposes is in general use, and the price per 1,000 feet? Is the supply of lumber and fuel sufficient for the present and future population?

A. The timber principally used for fuel is poplar. I consider the supply quite sufficient for very large settlements for a long time to come. From

Pelly to Edmonton the proportion of country covered with woods is 54 per cent. The quality of the poplar is much superior to poplar found in Ontario, being much closer in the grain, and more resembling soft maple. The lumber for building purposes in the North-West Territory is principally spruce, of which there is a large supply on the Saskatchewan to the West of Edmonton, and east of Carleton. Pine lumber is imported to Winnipeg from Minnesota. I have seen some good red pine to the east of Lake of the Woods, but none to the west. The spruce about the head of the Duck Mountains is very fine and large. Poplar, spruce and tamarac are used for making fences. A new saw and grist mill is being put up at Prince Albert, on the Saskatchewan. Lumber heretofore has generally been cut by hand; the price is probably £30 per 1,000.

Q. Would you inform the Committee whether in your opinion the arid portions of the country would be suitable for stock-raising?

A. I passed over no part of the North-West that could be called arid, or any that would not be suitable for stock-raising. The large quantity of shelter to be found is a great advantage for winter pasturing. If horses are in fair condition in the fall, they will live out all winter without any attendance, and be in good condition in spring.

Q. Would you state if you have made any, and what observations of the climate?

A. I took observations of the climate for the winter '74-75, an unusually severe winter. The cold was very intense, and of course quite dry. In January and February the temperature was generally from 15 to 30° below zero, sometimes as low as 40. This winter has been much milder, though in November the thermometer was very low, once down to 40 below zero. The heat in summer is very great, but the nights are always cool. The winter is longer than that of Ontario. The snow in the woods is generally from eighteen inches to two feet, on the plains seldom more than a foot.

Q. Please inform the Committee your general impressions as to the adaptability of the country for settlement.

A. I consider the country admirably adapted for settlement, on account of the richness of the soil—the luxuriance of the grasses, and the large supply of firewood near at hand. The great drawback is of course the distance from markets. Everything grown in the country is now consumed there, and a large quantity imported from the United States. The Hudson Bay Company are large importers, to supply their extensive fur trade in the north. Their steamboats made a very successful trip last year, the first ever made from Winnipeg to Edmonton, in thirty-four days, carrying a light load of 130 tons. The great ease with which the Half-breeds can procure a large supply of buffalo meat for winter has much prevented the development of agricultural pursuits in the North-West. Although there were large numbers of buffalo in the country through which the railway is to pass, some two years ago, I saw none, and believe there were none within 100 miles. They will soon be exterminated, unless the Government prevent the slaughter now going on.

Q. How do the seasons compare with those of the Province of Ontario?

A. The cold in winter is considerably greater than that in Ontario, and the winter lasts longer. The heat in summer is about the same as in Ontario, but the nights are always cool. I noticed a very heavy dew-fall every morning when there was no appearance of rain. There are frequent showers during the summer, and heavy rains in the autumn, particularly near Edmonton and the Rocky Mountains.

Q. Is the general face of the country level or undulating? Are there any ranges of hills or mountains?

A. The general face of the country is rolling and undulating, very little of it entirely level. There are several ranges of hills, such as the Duck and Riding Mountains, the Touchwood Hills, Nut Hills, the Eagle Hills, Wolfe Hills, Willow Hills, Four Blackfoot Hills, and Beaver Hills, to the east of Edmonton. They generally rise about 400 feet above the plains, and are poor soil.

Q. What mineral deposits have you discovered in the North-West, where located, and to what extent?

A. I found coal in large quantities at the railway crossing of the North Saskatchewan, Pembina and McLeod Rivers, and at Coal Creek on the Athabasca, near the Rocky Mountains. The specimens shown are from these rivers. It undoubtedly extends over a very large area to the east of the Rocky Mountains, and will probably be found by boring a long way to the east of Edmonton. It is said to be found at Battle River. I did not search for other mineral deposits, but understand there is plenty of iron ore. Gold can also be washed on the bars of the North Saskatchewan.

Q. Did you find sufficient supply of spring water; or can water be produced by digging a reasonable depth?

A. The supply of water is abundant. In all parts of the country I visited we had no trouble in finding sufficient for ourselves and animals. In some low hollows the water is salt, but on higher ground, close at hand, the water is good and fresh. There are numerous rivers, streams, lakes and ponds in all parts of the country that I passed over. Water can easily be found in wells of small depth.

Q. Is the country subject to summer frosts detrimental to the culture of crops? What date do frosts appear in fall?

A. During the season of 1875 there were occasional frosts at night. The last observed was on the 11th of June, near Fort Pelly. The first noticed in the autumn was on the 9th September, in the heart of the Rocky Mountains. These may have been local frosts. There was no frost between those dates. I don't think those frosts would have injured grain crops: they did not appear to have any effect upon the grass. Wheat, barley, oats and potatoes are grown in large quantities at Prince Albert, on the North Saskatchewan, near Carleton, and Edmonton, Lac Ste. Anne and other places. I saw a very fine vegetable garden at Edmonton, at the Methodist Mission, and another at Long Lake, the Roman Catholic Mission, to the west of Edmonton.

Q. Do you consider the climate healthy and invigorating ; or is it subject to fever and epidemics ?

A. I consider the climate of the North-West Territories to be most healthy, and far superior to many parts of Ontario and Quebec. Although very cold in winter, there are no sudden changes—there is seldom a thaw from autumn till spring. The summer is very enjoyable, and the air on the plains very fine. There were some cases of fever in Winnipeg, but there is no doubt that they were caused by want of drainage, through the compact underlying clay, and from want of proper sanitary regulations.

MR. MALCOLM McLEOD'S EVIDENCE.

THE NORTH-WEST TERRITORY.

COMMITTEE ROOM, HOUSE OF COMMONS,

OTTAWA, April 8th, 1876.

MALCOLM McLEOD, Esquire, Barrister, District Magistrate for the District of Ottawa, appeared before the Committee.

Q. 1. Have you been in the North-West Territory, in what parts, and how long ? 2. Would you describe the features of the country, especially in relation to soil and its fitness for settlement ? 3. Do you know anything of the mineral deposits ? 4. Did you make observations respecting the climate ? 5. What are the capabilities of the country as respects navigable waters ?

A. I was born on the northern border of the North Saskatchewan Valley, and with my father, the late Chief Trader, John McLeod, Senior, partner in the Honourable Hudson's Bay Company, and one of the chief officers in charge of the District, crossed to Kamloops, British Columbia, in the Athabasca Pass, the Columbia River and the Okanagan Valley; was there four years; thence returned by the same route, starting from Kamloops with the usual "brigade" (some 200 or so horses), on the 26th February, 1826, and with nothing else for horse feed but the grass on the way. In the April following, ascended with boats the Columbia River to the foot of the "Athabasca" or "Rocky Mountain Portage" and pass; thence striking the Saskatchewan at Fort Edmonton, descended that stream to its mouth, and thence to Norway House at the north end of Lake Winnipeg. The old Norway House having been destroyed by fire, my father was charged with the building of a new Norway House, which, on completion, was used as the "Capital" or Seat of Government, in trade, of the whole area of the Hudson's Bay Company's trade from Pacific to Atlantic, and from the Arctic Ocean to the American and Canadian boundaries. Here the Executive Council—composed of the Governor and Chief Factors and Chief Traders in charge of Districts (trade districts, and of which there were about twenty), met annu-

ally, and there also all the trade routes of the interior centred. *My father was in charge of this main centre of the trade for about four years, and during that time all Official Reports as well as a very large correspondence, incidental, addressed to himself personally from all quarters from every chief trading post in those twenty trading districts, were annually sent through or to him.* He had the habit of keeping all these, viz: copies of reports, official, and the original letters. These reports and letters always touched on the food resources of the place whence sent, and in that way showed what vegetables, grains and stock were cultivated and raised. Besides that, as a matter of rule, every officer in charge of district or post had to keep a diary, not only of incidents, but of every matter of interest, and also occasionally make a census of Indians for the trade. As a matter of habit also they kept journals of travel, and in their mutual correspondence interchanged notes which, as it were, pictured—and that ever most truthfully—each to other, his field of work and life.

I happen to have in my father's collection many hundreds, probably a couple of thousands, of such papers, and also hand maps (made in field) of the country, and it is on these papers, besides my own recollection of different garden-places by the way from Kamloops, British Columbia, to York Factory, Hudson's Bay, that I have been able to give for publication in the newspapers and books, for some years past, statements as to economic areas in our North-West Territories, Rupert's Land, and British Columbin, and which I may summarize thus—as given by me in Lovell's Gazetteer of British North America, under the heads of "North-West Territories" and "British Columbia," and also in my work of 1872, entitled "Peace River."

"NORTH-WEST TERRITORIES AND RUPERT'S LAND (WHEAT AREA, 370,000-SQUARE MILES.)

"General boundaries: from *Lac Seul* (say Long. 92° W., Lat. 50° N.) to foot of Rocky Mountains, Lat. 60° N.; thence along base of Rocky Mountains to Lat. 50° N.; thence to the south bend of Mouse River; thence to the Lake of the Woods, Lat. 49° N.; thence along Rainy River, and thence to *Lac Seul*. This area, unbroken by mountains or rocks to any material extent, with streams and small lakes which but fertilize, may be stated at 320,000 square miles.

"Beyond it, northwards, however, are also areas of richest vegetable mould, (*humus*) on warm Silurian and Devonian bases, and with mainly clays of utmost fertility. They are found on the lower reaches of the Rivers Peace, Hay, and Aux Liards (Arctic streams, tributaries of the great Mackenzie River), an aggregate, say, of at least 50,000 square miles.

"VEGETABLE AND GRASS (ECONOMIC) AREAS BEYOND (AND NOT INCLUDED IN) THE ABOVE, WITH SUFFICIENT TIMBER, &c.

	Square Miles.
" 1. Hudson's Bay Basin (portion Silurian, so far as known, and fairly predicable) east side, (E. of meridian 80° W.) 100,000 square miles. West side (W. of meridian 80° W.) 300,000 square miles.....	400,000
" 2. Winnipeg Basin, east side, from English River to Nelson River.....	80,000
" 3. Beaver River (middle and lower parts).	50,000
" 4. Methy Lake and Clear Water River, and Athabasca River from Clear Water River to Athabasca Lake, east side....	30,000
" 5. West of Mackenzie (Devonian with coal measures) to wheat line as above stated, and from Fort Chipewyan to Fort Resolution on Great Slave Lake, say, from Lat. 58° to 61° N....	10,000
" 6. East side of Mackenzie River to Fort Good Hope, or say Lat. 68° N.....	100,000
" 7. West of the Mackenzie River from Lat. 61° N., northwards, to American (late Russian) boundary, Long. 141° W., and American Pacific shore strip, viz:— all north of Lat. 60° N., except area No. 5, aforesaid.....	160,000
" 8. Rocky Mountain eastern slope beyond wheat line.....	30,000
" 9. Outlying areas, amongst others, the extensive but undefined ones between the Hudson's Bay Silurian, and northern rivers of the St. Lawrence valley; say from Lake Mistassini to Lake Nepigon.....	100,000
" 10. Add, also, the (by some called) "American desert" of our latitudes; say, between Lats. 49° and 50° N., where maize well grows, and Buffaloes fatten— a favourite Indian hunting ground.....	40,000
Total area.....	1,000,000

" The barley area of the above may be stated at two-thirds.

" The rest of our North-West and Rupert's Lands, including the immense "Barren Grounds" of our Laurentian system, and the Labrador Rocks of our eastern Rupert's Land, and the great wilds and islands of our Arctic, may be fairly estimated at another million square miles.

" The above economic areas are predicated on the old eastern boundary of British Columbia, throughout its length from Lat. 49° to 60° N., but by recent statute, the Imperial Act 29 and 30 Vic., chap. 67, that boundary has been changed so as to give about 30,000 square miles, or a little more, to British Columbia, and half of which 30,000 square miles is wheat land of best quality.

" And here, as holding special knowledge, personal and documentary, as to

British Columbia, throughout its interior, known best, if not (until very recently) almost solely, by the fur trade and the Puget Sound Agricultural Association, in which my father, and, on his decease, myself, were partners, I would make a statement as to the agricultural resources of that country, as having some relation to, if not in a sense embraced in the general term "North-West Territories" of Canada.

" BRITISH COLUMBIA.

" Total area (geodesical) 350,000 square miles.

" Wheat area, islands included, estimate at 150,000 square miles, being all south of Lat. 55° N.; although, it must be said, there are fine wheat valleys far beyond northward. The grass, barley and vegetable area north of the above—that is, from Lat. 55° to 60° N. (northern boundary of British Columbia) and from Long. 120° W. to the American boundary, Long. 141° W., I estimate at 100,000 square miles. A considerable portion—say one-sixth, of these areas is covered with lakes, numerous, and, like all the rivers, abounding with wholesome fish—the staple food of the natives.

" Wood and grass area 300,000 square miles.

" Barren rock, but with considerable mineral (in commercial quantity and quality) such as gold, silver, copper, iron, &c., and coal of best kinds in abundance and readily workable, 50,000 square miles.

" The fish wealth of its shores (sea) and inland waters is unrivalled in extent and excellence.

" Its fur yield to the trade, in my time there, as I see by the books and papers of my father and of his staff of eleven clerks in charge of outlying posts in his district, was proportionately larger than that of any other trading district in the whole Hudson's Bay Territories. What now it may be, it is impossible to say.

" As to the adaptability of the country for stock raising, I may state:—

" It is more a grazing than an agricultural country, and the horses used by the trade (fur)—bands of from 200 to 300 for transport—had only the natural grasses, bunch and other, to feed on the *whole year round*, and in winter, though ever left in the open, even fattened, and were ready for their early spring and long summer work. There were no cattle nor even a pig there in those times, and it was with great difficulty that in 1826 my father managed, in spite of opposing Indians, to take the first calves up the Columbia. They increased so rapidly that they (the Company) had soon more than they required, or could use in anyway, and they had to let them run wild.

" Nine years afterwards, viz., in 1835, the Puget Sound Agricultural Association, with a capital of £200,000 *stg.*, ten per cent. paid, was started by a few partners of the Hudson's Bay Company, and amongst them my father to the extent of £500 *stg.* It established a farm, very large, on the Pacific Coast, Puget Sound, with extension to Vancouver Island.

" The principle objective market was the Russian trade, viz., tallow to

their trading posts, and garrison at Sitka on the north-west (then Russian) coast, and also for supplies to the Hudson's Bay Company's trade. For some years it paid 5 per cent. on paid up capital (10 per cent.), but from mismanagement or failure of market, dividends failed entirely, and about 13 years ago I sold out at par.

"The Oregon Treaty gave the Americans the greater part of our lands and improvements, and the indemnity voted, and ultimately after about 20 years paid for it, was one million dollars, an increase in value of nearly ten-fold in eleven years, the treaty being in 1848. The fact carries its own obvious significance on the questions of agricultural resources of the region in question. The average yield of that wheat field is credibly reported at from 60 to 80 bushels of wheat per acre (English acre).

"The Company's farms on the Columbia and the Cowlitz (a northern tributary near the coast), constituted, I believe, in their value, the principal portion of the four millions of dollars of indemnity voted to the Company, and paid by the American Government of the United States under the Oregon Treaty. The terrain of Southern British Columbia—a comparative plateau—from Kamloops to the American boundary (49°) *via* the Okanagan Valley, is not a whit less valuable for grazing, and much of it for agricultural purposes, than any part of the Columbia Valley. Unfortunately for the country's credit in this respect, the late railway surveys have been in what truly may be called a sea of Mountains—its "Highlands,"—its Alpine regions of somewhat rugged mould; but as the campagne, the ever fertile plains, and vales and mountain foot slopes of Italy, or southern France, are not to be judged by the neighbouring heights that but minister to their fertility, neither should British Columbia in her physical features in this respect.

"So much for Southern British Columbia, say from the American boundary to Latitude 54° North. Beyond that the country is less mountainous, and in fact from the Rocky Mountains to the Coast Range is a fine rolling plateau of wood and prairie with much of lake and river of easy and far continuous navigation, and where, at an average height of only about 1,000 feet above sea, the prevailing flora is one indicative of heat and moisture, and a fine climate, with no severer winter weather than prevails in Central Canada, say in the meridian of Ottawa.

"It is a region little known, save to the *old* fur traders of the North-West, and in their Journals and ever faithfully-kept and most credible diaries—from which in my book, 'Peace River,' published here four years ago, I quote largely—we find record of a high degree of fertility and agricultural product.

"I shall here present but two extracts, viz.: from the late Chief Factor Harmon's journal of life, for several years there, about 60 years ago, and which was printed about 50 years ago and is now scarce. 'At Fort St. James' (about latitude 54° 30' North, and 1,800 feet above sea, as estimated by me, and as subsequently ascertained by aneroid measurement by Mr. Horetzky, of Mr. Fleming's staff),

'the first barley (five quarts) sown produced five bushels, say about 84 bushels per acre.'

" 'At Fort Fraser' (still further west on the slope of the Cascade or Const Range), 'the first potatoes planted (about a bushel) produced forty-fold.'

"Fort St. James is only about 50 miles, in air line, from old Fort George on the Fraser, to which point, it has just been reported, the Canadian Pacific Railway is being located. The nearest and best access to ocean from that point is by that valley—a fine open one according to report—on which old Fort Fraser was built, and whence to ocean—Gardner's Inlet, there is (according to old fur trade reports in my possession) at least one salmon stream direct westward to ocean, and salmon being unable to leap beyond 12 feet in height, their presence on this plateau by such short cut from sea would seem to indicate a line of route possibly feasible for railway to ocean there.

"There would be more good land along such line than any other further south, as all south between the Fraser River and the west coast is higher and colder.

"For Canadians, accustomed and able to cope with such winter there, and with the more than ordinary Canadian degree of growing power in climate and soil, this region is really a good one; and a local market is ever at hand in the gold mining communities of Cariboo, Omineca, and Cassiar.

**"GENERAL REMARKS AS TO THE FERTILITY OF NORTHERN REGIONS
BEYOND THE SO-CALLED 'FERTILE BELT' OF THE SASKATCHEWAN,
AND CORRESPONDING LATITUDES WEST OF THE ROCKY MOUNTAINS.**

"To remove the general misconception—how inspired, or whence derived, it is not for me to say—as to the economic value, fertility and agricultural resources of that further North-West, which was regarded by even Canadians in general to be a hyperborean wild of utter sterility, or fit only for fur hunting, I—at a juncture of events in our political world of British North American Provinces, which seemed to call for such information—wrote, four years ago, a book under the heading 'Peace River,' with notes covering the whole ground from the Pacific to the Atlantic, and from the Arctic Ocean to the furthest southern boundary.

"The special, and it may be said exceptional fertility of the Peace River Valley, throughout its whole length of about a thousand miles, from its discharge into the McKenzie River to McLeod Lake on the west side of the Rocky Mountains, I endeavoured to show by a narration of facts from journal entries by gentlemen of the Hudson's Bay Company, and from letters and reports addressed to my father by officers in charge along that line of trade route. I never personally

travelled it, and therefore was careful to state only what, by reading and reasonable deduction, I thought I could fairly advance on the subject. I happened to place an advance copy of the work in Mr. Fleming's hands when starting on his transcontinental flying trip on survey for the Pacific Railway, and specially called his attention to my tabulation in the book of distances and heights all along to the Peace River Pass, and thence to the mouth of the Fraser, *via* that stream to Fort Alexandria, and thence to the North Thompson Branch and the Thompson River proper, and pointing particularly to the Peace River Pass as one of exceptional lowness.

"It had never been measured, and my estimate as to height was predicated on careful examination of itinerary entries of a canoe voyage from Hudson's Bay to and through it. My estimate was 1,750 feet.

"On the strength of the pamphlet, he detailed from his staff Professor Macoun, botanist, and Mr. Horetzky, furnished with aneroid. My heights were, strange to say, ascertained to be almost perfectly correct. As to the question of fertility, &c., I have now the endorsement of Mr. Macoun after having just gone over the whole ground, and much of it twice over; and, as he has kindly given me permission to use his statement on this point, I would give the following extract from his letter to me, dated last month :

" 'Your writings,' says he 'first, called attention to the country, and after having traversed the country from end to end I can say with safety that all your statements regarding the fertility of the country are fully borne out by the facts which came under my own notice. You have certainly not over stated the value.

" 'You will find enclosed in this letter a few *Woodsia* *Gubella* from the Portage of the Clear Water River (see Sir John Richardson's narrative of his search for Sir John Franklin, vol. 1, page 119) I collected on the 11th September, 1875. Could you send it to Sir John's brother-in-law with my compliments.'

"This Clear Water River, I would observe, is an eastern and Laurentian (somewhat colder) tributary of the McKenzie, and I had referred to it in terms of special commendation for the beauty and exceptional warmth and fertility of its remarkable valley.

"The brother-in-law of Sir John Richardson, referred to, is the Reverend H. M. Fletcher, of Alton-Berners Rectory, Marlborough, Wiltshire, England, who, in the course of the present winter, had addressed himself to the Department of Agriculture here, and also to myself, for information as to the means of getting to the Peace River District, with a colony of about 150 persons, principally farmers, and all with means sufficient of their own, so he stated, to take them through and begin settlement there; and he proposed to accompany them and remain a year with them. All he asked for from me was instruction as to route, and from the Government, whether they

would supply them with a doctor, or, at least, with a 'medical chest.' He stated that he had been roused to the act by reading in Mr. Fleming's book, 'Ocean to Ocean,' the extracts from my work as to the fertility and climate of the region; and also, he gave me to understand, that from the fact of the widow of the late Sir John Richardson (his, Mr. Fletcher's sister) living with him, *his notes as to the flora* of the Peace River region, especially in its lower and most northern parts, were, in a way, before him, and, besides that, from long study on the subject, he had formed a favourable opinion as to the special adaptability of the country for colonial settlement. He, moreover, said that he had already engaged in similar work in bringing out some of his people to the Ottawa Valley in 1871, and seeing them settled there. I may state that the Department referred the letter to me, for information, and my advice was that any such effort at present in that direction would be premature and inadvisable, if not impossible, until the country should be opened by Indian Treaty, survey, and roadway.

"I refer to this incident to show that the only two scientists as to the *flora* of the region in question, who have gone over the ground and are competent to give an authoritative opinion on it, seem to agree as to the exceptional fertility of that so-called hyperborean wild. I never read Sir John Richardson's report. Amongst my father's papers I see letters from him and Sir John Franklin, but they do not touch the subject in question.

"As to botanical record of British Columbia, I may remark that the celebrated botanist, Mr. Douglas, who first brought to notice the now celebrated 'Douglas Pine' of the Pacific slope, travelled with my father in the Columbia Country, and my father, from such association, noted much as to the giant growth of the Columbia flora. In my father's journals I find frequent reference to his interesting and evidently most loved friend and companion in travel and peril, for then they had at times to fight their way.

"I may also add that the Honourable Hudson's Bay Company, by its Directory in London, and also Sir James Douglas, the first Governor of British Columbia, and who thoroughly knows the land from his life of half a century in it, have expressed to me in warm terms their approval, and in a way, endorsement, of my work, Peace River.

"CLIMATE.

"Assuming it to be unnecessary to make any specific statement as to the climate of the Hudson Bay Basin—no part of which, to any extent large enough for settlement, can be well considered as fit for agricultural purposes—I shall merely say that though severe it is not unhealthy, and is quite endurable by persons engaged in the Hudson Bay Company's service—no worse, in fact, than that of Canada, east of the meridian of Quebec.

"The Winnipeg Basin, even at Norway House, at its north end, and of life at which I have distinct recollection, is on the whole not more severe than that of Lower Canada between Montreal and Quebec.

"In the Saskatchewan Valley—say the North Saskatchewan—at Fort Carlton I know that my grandfather (maternal grandfather), Chief Factor Pruden, who built Fort Carlton, and for many years held charge of that district, raised easily all ordinary kinds of garden vegetables raised in old Canada, and all cereals, and, (with some difficulty, however, owing to occasional summer frost) even Indian corn.

"As to *wheat*, it has for many years past—about fifty, as I see by letters to my father from an uncle of mine (Chief Trader Harriot), who first took it there, and according to subsequent reports—been constantly raised, even at Lake Ann, beyond Edmonton, where there is a considerable settlement of old retired servants of the Company. On the Athabasca, further north, at Red Deer Lake, where there is an old and considerable settlement, it has never failed, and the climate and locality are most favourable for it.

"Still further north, on the Peace River, three hundred miles nearer the North Pole, it is raised, and Professor Macoun has just brought us a specimen of it, '68 lbs. to the bushel,' which is one pound and three-quarters more than the wheat (from our own County of Pontiac) which took the second prize for wheat at the World's Exhibition at Paris in 1867. The fact tells its own tale as to climate in those higher latitudes of ours.

"We have, moreover, an exact and reliable record, in careful thermometrical registry, at a central point, viz.: Dunvegan, of the climate of the Peace River region—one kept by my old friend and client when I practised at the Bar in Montreal, David Thompson, astronomer of the old North-West Company, and to whom the mapping of those far northern lands from Hudson Bay to the Pacific is mainly due.

"THE THOMPSON REGISTER—DUNVEGAN, PEACE RIVER.

Month.	Latitude 56° 8' N.	Longitude 117° 13' W.	Fahr.
		° Fahr.	Month.
April	37.6	November.....	14.6
May	54	December	—4
June	64.5	January	+ 7
July	63	February.....	+ 2
August	60	March.....	22.5
September	55		
October	40	Mean of winter.....	8.42
		—Mean of the year.....	35.51
Mean	54.87		
Mean of 3 summer months.	62.50		

"As to the period of cultivation (from April to October) it is a fact worth noting that Dunvegan, Toronto and Quebec do not vary more than half a degree in mean temperature, and that as to Halifax, the difference is only $1^{\circ}69'$ —not far from two degrees in favour of Dunvegan. As to the winter cold of Dunvegan, its steadiness and dryness are, for both man and beast, better than that of any other place in the Dominion. I never saw any person from that region but who was improved and strengthened in health and body, and I may say mind, by the life; a region of essentially strong life.

"As to the climate of British Columbia, it is to be observed that on the whole, it is moister and warmer than that on the eastern side of the Rocky Mountains in the same latitudes, but local causes, viz.: the special physical features of the country, with its alternate of rugged mountain range, and comparative level, vary it much. In its southern half, the altitude of the cascade or coast range, seems to wall off from the interior the vapours of ocean waters, which waters never vary beyond 50° to 52° Fahr., the whole year through, while on the northern half of it, or at least between latitudes 53° and 56° , there is a freer play of ocean vapour, with its ever-fertilizing influence over the whole breadth of the country to the Rocky Mountains and even beyond, through the Peace River Pass and other passages in the lowered range in those latitudes.

"Between latitudes 53° and 56° , exclusive of mountain heights, it may be called mildly Canadian, and with a greater force of vegetable growth.

" MINERAL DEPOSITS.

"I cannot say much on this head, only that coal "lignite" is reported from the Saskatchewan to the Arctic shore, along the base of the Rocky Mountains, with a varying breadth of from 50 to about 300 miles or more, and that for many years past it has been used and found good for forge work, at Fort Edmonton. East of the Rocky Mountains, I am not aware of gold or silver having been found in "paying quantities." In the "Smoky River" region—so called from the constant or frequent smoke of burning coal area (superficial) there—sulphur in abundance is reported; north of Lake Athabasca, salt, pure and merchantable, abounds, and that on the surface. In the Athabasca and Peace River, there is a large exhibit of oozy bituminous substance like coal tar, which very probably may be found of economic value, and which the Company, I am told, use for pitching their boats.

" NAVIGABLE WATERS.

"They abound throughout the whole region, and the whole transport in the fur trade, east of the Rocky Mountains, used to be, and I believe still is, by water.

"The boats used by the Hudson's Bay Company are of from four to five tons, and strongly built for haulage over portages and running rapids. The whole transport, in and out of the trade, from Edmonton on the Saskatchewan, from the Athabasca, Peace and McKenzie Rivers, and also from Red River to Norway House, and thence to ship at York Factory, Hudson Bay, used to be by them.

"The aggregate boat navigation of these water highways may be laid at six thousand miles.

"That of other streams, such as Winnipeg, Beaver, and other streams, too full of bad rapids for boats, but where canoes are available, may aggregate about half that.

"The Hudson Bay Rivers south of York Factory, in which boats might be used, but are not to any extent, would aggregate about two thousand miles more. Total navigable reaches, say 11,000 miles.

"The whole country is thoroughly traversed by navigable streams.

"I have seen on its way with its picked crew of eight Canadian voyageurs and an Iroquois or two, the bark canoe, which in 1828 carried Governor Simpson from tide-water, Hudson's Bay, to tide-water (Pacific) at the mouth of the Fraser—a transcontinental trip of about 3,600 miles, *via* Peace River. In my book, 'Peace River,' I give the journal of it.

"The most important stretches of navigation are from Red River to the mouth of the Saskatchewan, thence to Edmonton and even some miles beyond. This stretch might be effected without break of bulk, or at least without taking the boat out of water. From a point on the Saskatchewan, say about Victoria or below, a portage road of about sixty miles should be, and I am told is being made, to the bend of the Athabasca; thence to the mouth of the Peace River the distance is about 350 miles; thence to Mountain Falls is about 220 miles. This stretch of 570 miles is of comparatively most gentle current and of ever-abundant brimming waters. The Mountain Falls necessitate a short portage. From them to the foot of the Rocky Mountains is a splendid stretch of 500 miles, comparatively easy river navigation, without a single break for boats of any size, row, sail or steam. Here a portage (not difficult) of ten miles occurs. But beyond that, and with a semi-lacustrine course, across and through the *very heart of the Rocky Mountains* to McLeod's Lake, and Fort on the *West* side, there is unbroken and comparatively easy navigation for boats, about 200 miles further, and by the Finlay Branch, about the same distance to the Ominica Gold Mines, a region without one bad rapid.

"The McKenzie River, from Athabasca Lake to the Arctic, has a course of about 1,400 miles, in which, in pretty close succession, not far from the Lake, there are only four rapids. The rest of the stream, with a body of water but little less than our St. Lawrence,

and in current like that between Montreal and Quebec, is a thousand miles and more of ship course.

"From Norway House to York Factory, I have passed in one of the ordinary five-ton boats, and which was hauled on skids over the portages. By this route, though an arduous one, everything, from a pin to artillery, used to be brought into the country. Of late years the Pembina route has somewhat relieved it."

I think I have now answered every point of inquiry put to me by your honourable Committee, except that as to the time I was in those Territories. On this head I have simply to say that I was scarcely ten years old when I left the country for my education in Edinburgh, Scotland, but that I have a good memory of physical features as well as of incidents and mental impressions. That my kith and kin are scattered over the old home land, and that my correspondence with them and intimate friends there, as well as business relations in Hudson's Bay Co.'s affairs, have ever been, throughout life, of the closest and most confidential kind; and my own hearth in Montreal, and elsewhere in Canada, has ever been the resort of these friends from the old birth-land, from every quarter of it, and of which it has ever been a habit of life with me to speak and write, and work for its development into national existence, and to that end I have ever earnestly lent my humble service. Of my country I can but speak truth. *To be known* is all it needs. Its own intrinsic merits will, I trust, under Providence, do the rest.

CAPTAIN WALKER'S EVIDENCE.

THE NORTH WEST TERRITORY.

CAPTAIN WALKER, Inspector of the Mounted Police, North-West Territory, appeared before the Committee. He stated, in reply to questions :—

I have been in the North-West Territory since June, 1874. I have travelled from Fort Francis to Bow River, within eighty miles of the Rocky Mountains. The valleys of the Red River, the Little Saskatchewan, and almost all the streams I have seen, are very fertile, and so is a large portion of the prairie land, which is in every way suited for cultivation. Some of the valleys are twenty miles wide. The most of the land not suitable for cultivation will make good grazing land. We never had much difficulty in obtaining water by digging some seven or eight feet; for instance on the road from Fort Ellis to Fort Pelly there was a section of about forty miles where it was thought water could not be obtained, but which we found by digging some seven or eight feet, and in quantity sufficient

to water some fifty head of stock. There is timber on the banks of all the streams, besides which there are bluffs of poplar scattered over the face of the country. Good spruce and poplar are abundant in the neighbourhood of Fort Pelly, some of the spruce trees being as much as three feet in diameter.

For the last two years farmers have suffered very materially from the ravages of grasshoppers. At Fort Pelly last year the crops and vegetables looked remarkably well, notwithstanding that the land had been broken up for the first time last spring, but the grasshoppers ate up all the crops with the exception of say three hundred bushels oats. It is the general opinion, however, that the grasshoppers, not having deposited eggs to any great extent, will not do much damage this year. At Portage La Prairie there were good crops notwithstanding the grasshoppers. I think this was owing to the large extent of cultivated land in that section, and I believe that the more the country is brought under cultivation, the less will the grasshopper come. The only drawback to immigration is the grasshopper plague, and if the country was rid of them, it would be more desirable to live in than many parts of Ontario.

The climate is cold, but not felt more intensely than in many parts of Ontario, owing to the dryness of the air, and the steady, unchangeable temperature. The heat is not very oppressive in summer, owing to there being a constant breeze blowing over the prairies, and the nights are always very cool.

The depth of the snow ranges from one to three feet, and will average about eighteen inches. The native horses feed out all winter without care, and cattle thrive well when stabled and fed on prairie hay.

From my experience of the country, I am firmly of opinion that it is extremely healthy. We have had very few cases of sickness among the members of the Force, and many of the men are now in more robust health than they were when they went there.

The liquor traffic is about completely stamped out through the efforts of the Mounted Police.

MR. KENNETH MACKENZIE'S STATEMENTS.

The following questions and answers contain a report of the experience of Mr. Kenneth Mackenzie, a farmer, who emigrated from the Province of Ontario and settled in Manitoba. Mr. Mackenzie wrote the answers in 1873, to questions sent to him to obtain the information he has given:—

Question.—How long have you been a resident of Manitoba?

Answer.—Four years.

Q. From what part of Ontario or the old country did you come?

A. Scotland, in 1842, then twenty years of age ; lived in Puslinch, County of Wellington, twenty-five years.

Q. How many acres of land have you under cultivation at the present time ?

A. One hundred and forty under crop, and about sixty more broken this summer. We plough the first breaking two inches deep, and the next spring or fall plough it a second time, and turn up two inches more.

Q. Is it broken from bush or prairie land ?

A. Prairie.

Q. What is the quality of the soil, and of what does it consist ?

A. Around Fort Garry to Poplar Point rather clayey with rich alluvial soil above ; from Poplar Point west, clay loam with fine alluvial soil above, but in several places sandy loam. There are to the south-west of here places too sandy for good farming land.

Q. Do you consider it good agricultural productive soil ?

A. I never saw better, except that which is too sandy. There are settlers north-west from here for fully thirty miles, and although newly settled, they have good, fair crops, and no grasshoppers.

Q. Is prairie hard to break ?

A. When the summer is wet or moist I would sooner break it than old spear grass sod, as we do not require to break so deep.

Q. What months do you consider best to break it in ?

A. June and July, but earlier will do if you have time, as later does not answer so well.

Q. What kind of a plough do you use for breaking ?

A. American, made by John Deen Moline, but other Americans make good breaking ploughs—light with gauge wheel in front, and revolving coulter-mould boards and coulter and sheur, all steel. No use for any other material here in ploughs but steel. The soil is rich and very adhesive, and even to steel it will stick a little in wet weather, more so after it is broken and cultivated.

Q. What kind, and whose make, of a plough do you consider best adapted both for breaking and after ploughing ?

A. The American ploughs answer for both at present. I have a Canadian plough which does very well, but I think a good light Canadian, all steel, or even glass mould-board, would be better after the land begins to be old or long broken. We cannot go deep enough with the American ploughs when land is getting old and needy.

Q. How many horses or oxen do you use with each plough when breaking the prairie ?

A. On a twelve-inch breaker, we use one pair horses, or one yoke oxen. When sixteen-inch, we use three horses or two yoke oxen. I prefer twelve-inch ploughs to larger ones.

Q. How many acres will a good team break in a day ?

A. About one acre is a fair day's work, i. e., day after day. Some, of

course, will do more. The large plough and more teams will break one and a-half acres.

Q. How many ploughings do you give the land before cropping, and at what time ?

A. Two ploughings for first crop answers best, *i.e.*, one light or 2 inch in summer, and then 2 inches more, stirred up, next spring ; we plough both times same way, and not cross the first breaking. I have raised potatoes and turnips last year on first breaking ; had a fair crop, but would not like to depend on it if the season was dry.

Q. What crops do you grow most extensively ?

A. This year, spring wheat, 90 acres, barley, 30 acres, oats, 1 acre, peas, 8 acres, rye, 1 acre, flax, $\frac{1}{2}$ acre, potatoes, 6 acres ; the rest, roots of various kinds, and clover and timothy.

Q. What kinds of fall wheat, if any, do you grow ?

A. I have tried fall wheat, but do not consider it a profitable crop to raise here at present.

Q. What kinds of spring wheat do you grow ?

A. Golden Drop, Glasgow or Fife, and a little Rio Grande, I think it is called.

Q. How many bushels do you sow per acre ?

A. About 2 bushels per acre.

Q. What is the average yield per acre, one year with the other ?

A. Fully 30 bushels ; I have had over 40.

Q. Does Indian corn grow well, and yield a good crop ?

A. It does not mature very well. They have a small kind that ripens, but I do not like it.

Q. What kind of barley do you grow ?

A. Common 4 rowed, but think any variety will do well.

Q. How many bushels do you sow per acre ?

A. About 2 bushels.

Q. What is the average yield per acre ?

A. About 35 bushels, but I have seen over 50 per acre.

Q. What kind of peas do you grow ?

A. Russian blue and small white peas.

Q. How many bushels do you sow per acre ?

A. A little over 2.

Q. What is the average yield ?

A. I think this year about 20 or 25 per acre ; my land being new till this year, they did not do so well.

Q. What kind of oats do you grow ?

A. Black oats.

Q. How many bushels do you sow per acre ?

A. Two bushels.

Q. What is the average yield of bushels ?

A. I have but little, but I see fields from here to Poplar Point, I think will yield from 45 to 60 per acre.

Q. Do timothy and clover grow successfully ?

A. I have had both do well ; but timothy seems to do best.

Q. Do rye and flax grow successfully ?

A. Rye is a fair crop, and flax I never saw better.

Q. How are the soil and climate suited to growing root crops ?

A. All kinds of roots and vegetables that I have raised each year have done very well.

Q. Are these crops troubled with flies and insects as in Ontario ?

A. I have heard some complain of grubs, but have not suffered any, by them on my crops, and I have sown turnips in May and they did well, and all through June, and no flies to hurt.

Q. Has your settlement been troubled by the grasshoppers ?

A. Not since I have been here. I am eight miles west of Portage La Prairie, and no settler was before me west of the Portage. Poplar Point is about 25 miles east of here, or 17 from Portugal.

Q. How many times have the crops been destroyed or injured by them ; at what season do their ravages generally commence ; and how long do they generally continue ?

A. In 1868 they destroyed all from Portage at that time to Fort Garry, and all settled. This year they destroyed all down on Red River or around Fort Garry, and partially up the Assiniboine River, up to Poplar Point, but no farther. There are several fair crops in Headingley and White Horse Plains, *i.e.*, half way between P. Point and Fort Garry.

Q. Do you think that this plague will continue when the country is better settled and more land cultivated ?

A. I cannot positively say, but think their ravages are partial. Some may suffer, while others escape. They only made three clear sweeps, I am told, since 1842, when the country was first settled, and then all the portion that was settled was a small spot round Fort Garry. Rev. Mr. Nesbitt had a good crop in Prince Albert mission, Saskatchewan, in 1868.

Q. Are there any crops that they do not destroy ?

A. They are not so bad on peas as on other crops.

Q. Are the grasshoppers the only plague that you have been subjected to since settling in the Province ?

A. I have not suffered any as yet from grasshoppers. Black birds were very bad at first, especially on oats, and that is the reason I had no more sown this year. I have not seen one-fifth so many this year as before. I intend, if spared, to sow more oats in future.

Q. How do the seasons correspond with ours in Ontario ?

A. Fall and Spring are drier. About the middle of April, Spring commences generally; but I sowed wheat this year on the 31d of April, and ploughed in 1870 on the 5th of April.

Q. Is the snow melted by the sun, wind or rain ?

A. Nearly all goes with the sun.

Q. Have you much rain during the Spring ?

A. Very little till May, June and July.

Q. What time does the frost leave the ground ?

A. About the 20th of April ; in places it may be longer.

Q. Have you much frost after growth commences ?

A. I have seen a little in May, but I have not had any of my crops injured by frost since I came to Manitoba.

Q. How soon may ploughing and sowing be done ?

A. You may sow as soon as the ground is black or snow off. The frost was not three inches out when I sowed my first wheat ; I have it stacked now and a good crop.

Q. Is the summer different from ours in Ontario ?

A. Generally rather drier and vegetation more rapid.

Q. Have you showers during May, June and July, and have you heavy dews at night ?

A. Yes.

Q. Is growth as rapid as in Ontario ?

A. I think more so.

Q. Have you any summer frosts ?

A. None whatever since I have been here to injure crops.

Q. When do you generally cut your hay ?

A. From 1st July to 15th September.

Q. Does wheat, barley, and oat harvest commence later or earlier than in Ontario ?

A. Later ; generally about first week in August.

Q. Is the Fall early, wet or dry ?

A. Early ; generally dry.

Q. What date do frosts generally commence ?

A. First of the season, about 8th or 10th September, but fine weather after.

Q. When does the winter commence ; how soon is the ground frozen, and when does snow fall ?

A. Generally frozen about 10th or 12th November ; snow about 1st December. Some seasons are earlier ; others later.

Q. Have you deep snow early in or during the winter ?

A. First three winters snow would average from 16 to 20 inches ; last winter 10 inches. The frost is generally a steady freeze.

Q. Have you many severe drifting snow storms ?

A. Not any more than in Ontario, generally ; last season none, but that is an exception.

Q. Have you wood convenient, and what kind ?

A. From two to three miles ; greater part poplar, but some oak and white ash, and small ash leaf maple.

Q. How do you fence your fields ; with rails, wire, or sods ?

A. With rails.

Q. How deep do you have to dig to get water in yours, as well as your neighboring settlements ? Is it good ?

A. Generally they get water from nine to eighteen feet, but in this locality it is not so easily got. We expect to have a test well this fall. Water, in some instances, tastes a little salty. We use creek water.

Q. Have you a hay meadow convenient?

A. About two miles off I have a large one of my own.

Q. What grass grown in Ontario does prairie grass, cut for hay, most resemble?

A. Beaver meadow hay; only ours here, I think better, and more variety.

Q. Does it make good hay, and do cattle and horses feed well on it?

A. It makes good hay for cattle, and they feed well on it, but I do not think it near so good for horses as timothy hay.

Q. What is the average yield in tons to the acre?

A. From one ton to two and-a-half tons; different seasons and different grasses vary a good deal.

Q. To what height does grass on the open prairie generally grow?

A. On hard, dry prairies not over ten inches, but on hay meadows I have seen four feet.

Q. Is it as pasture equal to our timothy and clover in Ontario?

A. No, it is much thinner, and does not start so readily as clover, when eaten or cropped.

Q. Do the grasshoppers at any time destroy this grass, or can it at all times be relied upon as pasture?

A. They do a little cropping when very bad, but not, to my knowledge, to destroy it for hay or feed.

Q. How often do the settlers fire the prairie, and are your crops ever endangered by such fires?

A. There is a law against setting out prairie fires. I have not suffered any by them. I plough a few furrows around my fields and fences.

Q. Is it necessary to burn the grass on the prairie every fall in order to have a good growth the following year?

A. Not at all.

Q. Have you tried any fruit trees, if so, how have they done?

A. I have a few apple trees from seed, not well attended to, three years old. I do not think it very good for apples or pears, unless we have a very hardy kind; Siberian will do wild. Plums are very good, and likewise wild grapes, though small, grow finely on the banks of our streams, and better hops I never saw than grow here wild. We use them for our bread rising. Currants, raspberries and strawberries grow wild quite abundantly. I think the growth of apple trees too rapid, and wood does not ripen, the soil being rather rich, and not much shelter in general.

Q. What kind of lumber is most plentiful, and what is the average price for good lumber?

A. Poplar lumber, heretofore, and from twenty-five dollars to thirty dollars per thousand; now good fair pine is to be had at Fort Garry, dressed, for same price, and soon we will have a mill to cut up white wood pine, or rather spruce pine.

Q. Would you advise persons coming from Ontario, to settle as farmers, to bring stock, such as working horses, oxen, cows, sheep, pigs, &c., or would you advise them to bring with them any machinery, such as reapers and mowers, waggons, ploughs, fanning mills, &c., or can they be bought as cheap in Manitoba as they are brought, when we count the heavy freights and risk in doing so?

A. I would not advise to bring many horses. At first they do not thrive so well; besides grain is expensive till raised. Oxen I prefer at first. They do more work on rough feed, and are far less risky. I think nearly twenty per cent. of the horses die, or are useless the first two years after being here. If a farmer wants a driving mare or to breed, all well, but by far too many horses are brought in, till we have more timothy hay and oats raised. Oxen and cows thrive well, and none can go wrong to bring them in. They can be got here. Freight by United States route is very high. On immigrants' goods it costs in general about five dollars and a half per cwt; that is, counting bonding, &c. If got by Dawson route I expect it will be considerably cheaper.

Q. What is the price of a good span of horses in Manitoba?

A. I think about fifteen to twenty per cent. higher than same quality in Ontario, no regular price; same for oxen, &c.

Q. What is the price of a good yoke of oxen?

A. I have sold them from \$125, \$130, \$35, \$40, \$50, \$65, \$70, \$85, to \$200 and \$210, the latter were prime, i. e., here or in Ontario.

Q. What is the price of a good cow?

A. I have sold them from \$30 to \$60.

Q. What is the price of good sheep?

A. I have none; they would do well if people had pasture fenced; I think they would sell pretty high, but wool, as yet, has been cheap.

Q. What is the price of good pigs?

A. Probably about twenty per cent. over same quality in Ontario. There are some very good pigs here.

Q. What is the price of a combined reaper and mower?

A. From \$200 to \$240.

Q. What is the price of a good plough, also fanning mill?

A. Wooden ploughs, Canadian, do. American, about \$40. Fanning mills from \$45 to \$50, both far too high for all the work on them.

Q. Would it not be a good speculation to bring out some thoroughbred stock, such as cattle, sheep, and pigs?

A. I think so. My thorough bred cattle thrive well here both summer and winter.

Q. How do you think the country is situated for dairy, cheese, and butter making?

A. Very well, just the thing required.

Q. Have you always a ready market for your produce?

A. Can sell nearly all I raise at the door.

Q. What is the average price?

A. Wheat, I sold last season about 1,000 bushels for 1.50; two seasons before it was about \$1.25; barley, from 75 cents to \$1.12½; oats, from 75 cents to \$1; peas, from \$1 to \$1.25; potatoes, from 62½ cents to 87½ cents; butter, from 25 cents to 37½ cents per lb.; eggs from 20 cents to 25 cents per dozen; cheese, from 25 cents to 30 cents per lb.

Q. What season of the year would you advise settlers (with or without families, who intend to settle as farmers) to come in?

A. In spring, if possible; but any season will do. I would advise immigrants with families to rent the first year or "share," and take a little time to select their location, and then to work and put in a crop, on the place they rent; generally plenty of farms can be got to rent or share. My reason for not raising more oats is, that the blackbirds heretofore were very troublesome, and seemed worse on the oats, but there is not now the one-fifth quantity of them that there used to be, and I hear they are generally worst at first. I intend to sow fully 20 acres next year (I would sow more if it were ready) with carrots, turnips, and mangel-wurzel. These crops grow well, but the want of root houses is a disadvantage at present. I have a gang plough, but have scarcely used it yet, as I have been delayed breaking ground by taking in stock from the States. Last year I imported 84 cattle, and this year over 200, from the increase of which I now have fully 300 head. I am selling some daily, and purpose disposing of all the surplus I do not intend to winter, by auction, on the day after our County Exhibition, 2nd October. I am desirous of seeing good stock scattered through the Province as soon as possible. All my cows are served with thoroughbred Durham Bulls, and I have three thoroughbred calves, and one aged bull. Last season I sold at fair prices one thoroughbred bull and one calf. The country west or rather north west is better watered and wooded, and of better soil than that south and south west. All the land around here, say from 30 miles west, *i. e.*, third crossing of White Mud or Palestine River, to say 25 miles east, or Poplar Point, is rapidly filling up, especially this summer, but plenty is to be had all the way westward to the Rocky Mountains. I think few countries in the world are superior to ours for agricultural purposes, and, although the winter is hard and long, cattle, if provided for, thrive well. I wintered 91 head last winter, and lost none, all turning out well in the spring. Most of them had only rough open sheds for shelter, and ran loose. We have none of the wet sleet in spring and fall that hurt cattle elsewhere. We are now stacking our grain, and I think my average will be fully 36 bushels per acre all round; last year I had 32 bushels per acre. I raised about 300 bushels of onions last year, and sold them readily at \$2 per bushel, and I expect fully as good a crop this year, with the same, if not a better price, as but few are raised round Fort Garry. Such prices, however, cannot last long, but as implements, &c., get cheaper, we can afford to sell for less.

I again say, bring fewer horses into the country, but as much other stock

and implements as possible. First class marsh harvesters, or machines which will employ two men binding and of the most improved make, are wanted. I have two combined ones, made by Sanger & Co., Hamilton, which answer well, but those that will cut wider and quicker are required. There are no hills, stumps, or stones to trouble us, and I have not a single rood lodged this year, although my crops are very heavy. Straw is generally stiff here, and not apt to lodge. This year we have excellent crops of potatoes, and a neighbor of mine, Mr. Hugh Grant, yesterday, dug an early rose potato, weighing over two pounds, and not then full grown. I think grain drills or broadcast sowers would be an improvement, as it is generally windy here in Spring. They should be wider than those used in Ontario, say from eleven to twelve feet. Instead of importing more cattle next year I purpose breaking up more land, as there will be a duty after 12th May next, of 15 per cent. on American cattle, instead of the 4 per cent. now paid. Large numbers have been brought in this year, which will help to stock the country, as native cattle do well to cross breeds with improved breeds. Thorough-breds stand the winter equally as well as native stock. I never saw better buckwheat in Ontario than the few patches grown here. I think by ploughing round our farms, and planting lines of trees, we could have shelter, and live posts to which wire fences could be attached with small staples. Timber grows fast here. If we had yellow or golden willow, which grows rapidly from cuttings, it would do well. Poles, that I planted, of black poplar or balm of gilead are shooting out, and we could plant hardier and better trees amongst them, which, though slower of growth, would replace them. In several localities the Indians make maple sugar from small trees, and if some enterprising person, or company, would begin the manufacture of salt on Lake Manitoba, or to the north-west of it, it would be a profitable business, and confer a benefit on the country, as it is very dear. The Half-breeds manufacture it, but on a very small scale, and it is of poor quality, being made in rusty kettles. I am told the brine is nearly as strong as at Goderich, and the deepest well was only fourteen feet. Timber is found within a mile of the brine springs, and whitelish is abundant where the little Saskatchewan empties into the lake at Fairford. Salt, rusty as it is, has sold here at from \$2 to \$3 per bushel of 60 lbs. It if were more reasonable it would be a great improvement to our hay which cattle would devour more eagerly.

Waggons are generally heavily built, and so are the ploughs. When our makers take pattern from American machines their work is cheaper. If we had a through route of our own, Canadian-made machines would be cheaper, as in the present bonding system through the States the Americans endeavor to take every advantage of the immigrant, by misrepresentations and otherwise. I saw a great deal of that work when I was with the Mennonite deputation, an American sticking to them even after they were here, and making all sorts of false representations. As, however, the Mennonites are a shrewd people, they will weigh matters carefully before believing everything they

hear. With all the flattering inducements held out, I have not seen grain or other crops in either Minnesota or Dakota to equal ours in Manitoba. I have been in these States in all seasons of the year, and have friends farming in Minnesota, who are desirous, if they can sell out, of coming here. Whilst I was there wheat was selling for seventy cents (greenbacks), and oats for eighteen cents per bushel. Cattle and horses are fully as cheap if not cheaper than in Ontario; their taxes are enormous, but yet we have had no taxes here. I, however, have never advised any one to come here, either from Ontario or the States, lest they should be dissatisfied and grumble, as some do wherever they go. Let everyone come and judge for himself. I have seen people, newly arrived from the old country, grumble for a time, and afterwards you could not induce them to go back. Some that did go back soon returned. I have heard of some faint-hearted Canadians who, frightened with tales of grasshoppers and other drawbacks, returned without even examining the country, but I think we are well rid of such a class. We have a large increase this year, principally from Canada, and I think they are likely to prove good settlers. I think, however, immigrants from the old country will be better off, as the population there is denser with less chances, whilst Ontario, for those who are already settled there, offers as good a chance as here, without moving. I have never seen better barns and out-buildings, better farming, or more permanent improvements than Ontario possesses. Of course we are backward in these things as yet, but we use machinery of the most improved kind for getting in our first crops, and buildings, with other requisites, will soon follow, if our country keeps on prospering, of which there is little doubt, if we only get through communication established on our own soil. We have plenty of coal, iron, lead, silver, copper, pitch, tar, salt, and various other materials. The country is for the most part level, and easy for the construction of railroads. The grasshoppers that came here are driven by the wind from the deserts south of us. Our storms are not so bad as those in Minnesota, as the reports of the last few winters show. Immigrants should all bring seed grain with them, as change benefits grain; and I may here mention, as an instance of the adaptability of this country for wheat raising, that a variety called the "English wheat," brought from England, where it had been grown with the same soil for 30 years, yields well here.

I assure you I have not in any instance overdrawn my statements, as I would rather it should be found I had under estimated than exaggerated. Of course some seasons may differ from what I have seen, but if there are none worse than what I have experienced there is no room for complaint. The luxuries that are enjoyed in Ontario of course we cannot look for here. Even in the matter of fruit, if apples and pears fail to succeed here, railway communication, if we had it, would bring them from Ontario or British Columbia. Perseverance in cultivation may yet give us a supply of fruit, though it is a matter of uncertainty whether it can be raised here, especially the finer kinds.

MENNONITE NARRATIVE.

NARRATIVE OF A JOURNEY TO MANITOBA, BY JACOB Y. SHANTZ.

The following narrative of a journey to Manitoba was written in 1873 by Mr. Jacob Y. Shantz, a German Mennonite, resident in Berlin, Ontario.

Mr. Shantz, at the request of the Department of Agriculture, visited Ottawa, in company with Mr. Bernard Warkentin, a German Mennonite from Berdiansk, Russia, in November last, as interpreter.

The object of Mr. Warkentin in visiting Canada was to find a place suitable for the settlement of Mennonites who contemplate an emigration, *en masse*, from Russia.

At the request of the Department of Agriculture, he, with Mr. Shantz, visited Manitoba.

Mr. Shantz states that in writing a narrative of the journey, he has been moved by the simple desire to set down the facts with the utmost possible accuracy and with truthfulness, on which all may rely.

He wrote us follows :—

MANITOBA AND THE NORTH-WEST.

On the 5th November, 1872, Mr. Bernard Warkentin, of Russia, and myself left Berlin by the Grand Trunk Railway to Detroit (*en route* for the Province of Manitoba); thence by the Southern Michigan Railway to Chicago; thence to St. Paul, Minnesota, and by the Lake Superior and Mississippi Railway to Duluth; thence by the Northern Pacific Railway to Moorhead on the Red River, a place situated immediately on the boundary line between the States of Minnesota and Dacotah, from which place we proceeded to Pembina on the borders of Manitoba.

Entering that Province, we travelled a distance of 72 miles by stage to Fort Garry and Winnipeg, the latter being situated contiguous to the Fort, and a rising place. A railroad is now in course of construction to Pembina, which will be completed during the present year. We might have saved about 230 miles had we taken the route via Breckenridge, but in order to avoid travelling by stage, we took the longer route by railway. From Pembina we travelled about 50 miles along the Red River—a portion of the Province as yet entirely unsettled, with the exception of a few stations scattered every 15 or 20 miles where relays of horses and refreshments for passengers are provided. Passing this district the Half-breed settlements commence, small white houses with stables attached dotting the scene, and which become more numerous the nearer we approach the Fort.

Seven miles from Fort Garry we passed a grist-mill; the houses presented a better appearance, the farms being well fenced, and the Assiniboine

River was reached, a tributary of the Red River. The former stream is navigable for a distance of 60 miles or more, and though not wide is deep. Red River is navigable some 230 miles to the south and 30 to the north, where it empties into Lake Winnipeg. It has an expanse of about 1,000 feet at the Town of Winnipeg. Fort Garry, the principal trading post of the Hudson Bay Company, contains a small fortress with a garrison of soldiers. A large warehouse belonging to the Company is situated on the River's bank, in which six clerks are employed. There is also a telegraph office, and several two-story houses around the fort. Work had been commenced upon the foundations of a new hotel to be erected this year at a cost of \$14,000.

At a distance of about a quarter of a mile or so lies the Town of Winnipeg, the capital of the Province, only founded a few years ago, but which already contains 12 stores, 5 hotels, and a large saw-mill, capable of cutting from ten to fifteen thousand feet of lumber per day. There are also a planing mill, and four printing offices. The houses are mostly frame, brick being the exception; though brick are now being manufactured there. Stone and lime are procurable within six miles. The roads, as well as the streets, are in bad order, with very little sidewalk, but the building operations continually going on and teaming in connection therewith, will cut them up for some time to come.

On the eastern side of Red River lies the village of St. Boniface, containing a Roman Catholic Cathedral, Church of England, Presbyterian Church, and a school-house. Further down the river is St. John (Church of England) College. After seeing Winnipeg, we started for the Indian Mission, about 60 miles to the north-west. For a distance of some two miles are the houses of the Half-breeds, after which nothing was to be seen but the unbroken prairie, till we arrived at "Cattle Farm," 20 miles distant, where we saw 100 head of cattle grazing. The farm-buildings consisted of a small dwelling-house with outbuildings, and a stack of hay containing about 100 tons. When we left there on the 23rd November, the cattle were still in the fields, and the pasture was good. For the rest of the distance to Indian Mission, the country changes, the prairie being dotted here and there with belts of woodland known as "bluffs," containing from one half to ten acres, for the most part poplar. This lumber is used by the Half-breeds for building purposes, for fences, and for fuel. On arrival at the Mission we found about twenty families of French Half-breeds, who lived by hunting and fishing. Here we met Mr. William Wagner, Provincial Land Surveyor, who takes great interest in the encouragement of Immigration to Manitoba. Immigrants arriving, especially Germans, would do well to apply to this gentleman for information as to the most profitable and desirable lands on which to settle.

Leaving the Indian Mission we journeyed south-west along the eastern shore of Lake Manitoba, and found fine prairie land there, dotted as before with "bluffs." For 40 miles we travelled without seeing a house till we

reached a spot called "Poplar Point," on the Assiniboine, where we found a farm of about 90 acres under cultivation, belonging to a Mr. Taylor, who owns a large number of cattle. In the vicinity is a settlement of English Half-breeds, chiefly Protestants, and possessing three churches, English, Presbyterian and Methodist. Proceeding still further westward along the banks of the River, which are settled by small farmers, we arrived at "High Bluffs," a place with three churches and a school house. Here we staid at a farm belonging to a Mr. Allecock, an Englishman, who came here from Ontario three years ago. He showed us as fine a sample of spring wheat as I had ever seen, and told us that he had harvested 40 bushels to the acre. He also exhibited a splendid sample of oats, flax seed, potatoes, turnips, cabbage and other vegetables.

Seven miles further on, in a westerly direction, we came to the village of "Portage La Prairie," with six stores, a grist mill, four saw mills, and quite a large number of mechanics. We next visited Messrs. Grant and Mackenzie, whose farms lie about eight miles distant from "Portage La Prairie," both of whom came from the Province of Ontario. Mr. Grant showed us a sample of wheat which had turned out 30 bushels to the acre, and some very fine oats. His potatoes also were of a very large size and superior quality, such as I have never seen surpassed. Mr. Mackenzie's wheat yielded 32 bushels to the acre. He also showed us about 100 bushels of onions, measuring from two to five and a half inches in diameter. The turnips also were of a very large size, of which three would weigh 60 lbs. He stated that he had taken 1,200 bushels of potatoes off of four and three-quarter acres of land—prairie land broken up, and the potatoes ploughed under. He also showed us young apple trees which he had raised from seed that looked very thrifty. This gentleman also possesses a herd of ninety head of cattle, amongst which I remarked a full-bred Durham bull, and some Durham cows. I am thus particular in mentioning all I saw on this farm, that the reader may form some idea of the richness of the soil. The distance from "Poplar Point" to Mr. Mackenzie's farm is about 22 miles up the Assiniboine River, along which there is a good strip of timber, and the land well settled, partly by English Half-breeds and immigrants from Ontario.

Returning to "Poplar Point," we resumed our journey in an easterly direction by the main road towards Winnipeg, and at a distance of 12 miles, we reached St. Paul's Mission. Six miles further we came to Pigeon Lake, one mile distant from which is the Hudson Bay Company's Post, known as "White Horse Post," where the Company carries on farming on an extensive scale, 9,870 bushels of grain having been raised in 1871 on two hundred and ninety acres of land. The Company also maintain here about 500 head of cattle. Twelve miles further we came to Headingley, a small village; and four miles distant from that is Sturgeon Creek, where there is a steam mill and distillery. Passing "Silver Heights," where the Hon. Donald A. Smith, late Governor of the Hudson's Bay Company, resides, we came to St. Paul's Church (Church of England), and after a further distance of five

miles, reached again our starting point. Our road lay on the north side of, and along the Assiniboine River; the soil consists of good rich prairie land, and belts of timber, consisting of elm, basswood, ash, and poplar.

Leaving Winnipeg again in a north-easterly direction, we proceeded along the Red River to the Hudson Bay Company's Post, known as the Stone Fort, where there is a small garrison. The whole distance from Winnipeg to the Fort is thickly settled. Respecting the weather, whilst travelling in the States of Minnesota and Dacotah, from the 10th November to the 1st December, it snowed continually with drift, although the snow was not over eight inches deep on the plains; on reaching the Manitoba line, however, we found very little snow, and on arrival at Fort Garry, on 17th November, there was not enough snow to cover the ground. From the 18th to the 28th November there was no snow of any consequence in Manitoba, and on the 1st December leaving Fort Garry on our return we had beautiful weather, travelling by stage, on wheels, 140 miles. The further south we came the more snow we found, till, on our arrival at St. Paul, it was fully a foot in depth. This confirmed the statement made by the people in Manitoba that they do not experience as much snow as falls in Minnesota and Dacotah. Apparently the further westward you travel in Manitoba, the less snow is met with, and the milder is the climate.

SIZE, GROWTH AND DEVELOPMENT OF WINNIPEG, THE CAPITAL OF MANITOBA AND THE NORTH-WEST.

A general desire being felt to know the exact increase of the population of Winnipeg during the last summer, much speculation has existed, based upon all kinds of random suppositions. Judging from the ordinary indications of trade and building, few towns can boast a more rapid growth. In the fall of 1870 the population was 300, whilst in the fall of 1871 it had increased to 700, and in the fall of last year, a careful enumeration made showed a population of 1,467, thus giving an increase of nearly 800 during the past year. The number of houses erected during the last building season were stores, dwellings and warehouses of one story high, thirty-four; of one-and-a-half stories, one; making a total in all of 124 new buildings. In addition to this there are now under contract a brick hotel to contain 100 rooms, for Mr. A. M. Brown; the Canadian Pacific Hotel, with a frontage of 90 feet, and to contain 100 rooms; whilst numerous stores and warehouses together with private residences are being erected. There remains to be mentioned the Receiver General's Office, Custom House and Post Office to be erected by the Dominion Government at an average cost of \$15,000 each.

With respect to wages, although varying according to circumstances and place, the average prices may be set down as follow: carpenters, \$3.50 per day; bricklayers and masons, \$4 per day; painters \$3.50, and labourers \$2.50 per day. These rates of wages, though higher perhaps than elsewhere, are not the only advantage, for the sober industrious may, out of the savings of

one or two months, secure, by making their first payment, a lot and home of their own.

The market rates, as far as we could ascertain them, where the supply is so irregular and uncertain, were: wheat \$1.25 per bushel; oats, \$1.00 per bushel; barley, \$1.10 per bushel; potatoes, 62 cents; onions, \$2.00; carrots, 75 cents; turnips 50 cents, and beets 50 cents per bushel. Hay was selling from \$7.00 to \$8.00 per ton; butter, 30 cents per lb; eggs, 30 cents per dozen; beef, 12½ cents per lb.; lamb the same; veal, 20 cents; pork, 20 cents; and fresh fish about 5 cents per lb. Board ranges from \$5.00 to \$9.00 per week, though many young men save money by boarding themselves.

STINKING RIVER SETTLEMENT.

This settlement is best reached by way of Headingley and thence south over the Pembina trail which crosses the Stinking River, near the upper end of the settlement. The land on both sides of the river is nearly occupied through the extent of townships 8 and 9 in the second range. The settlers are for the most part from Central Canada.

Stinking River contains water at all seasons, clear and good, except at a few points where salt springs affect it for short distances; good water can, however, be had anywhere by digging to a depth of a dozen or twenty feet.

Both banks of the river are fringed with oak and poplar of good size, in sufficient quantities for settlement use, which increase in size and density as the river is ascended.

The prairie, on either side, consists of a black loam, easily cultivated and of sufficient undulation from the numerous gullies leading to the river to be well drained, an important point towards early cultivation and quick growth. North of the river is an unlimited supply of marsh hay, the spontaneous growth of the marsh which extends to the south-east over parts of two Townships.

BOYNE RIVER SETTLEMENT.

The River Boyne takes its rise in the Pembina Mountains, and is about 50 miles long, flowing in a north-easterly direction until it loses itself in the great marsh, mentioned before as extending to the vicinity of the Stinking River Settlement. Its banks are, for the greater part, lined with a fringe of heavy oak timber, to the depth of from a quarter to half a mile, till towards the mountain it extends into a forest of a number of miles wide; on the edge of the marsh, however, poplar is the principal timber met with.

The present occupants point with pride to the substantial character of their improvements, their houses being well built and commodious. Some of the largest enclosures in the Province are to be met with in this settlement, it being no unusual thing to see a field of 100 acres, of 60 acres, and 50 acres respectively, used for pasturage, the trouble of fencing being amply repaid by the certainty of always finding the cattle when wanted. The majority

of the settlers here are Canadians, and the land is taken up for a distance of five miles east and west; beyond that, however, there is an abundance of land equally good, embracing the richest prairie land, with wood, water and hay.

The natural advantages of the Boyne district for the raising of cattle, with its abundant supply of water, fodder and shelter, has attracted the attention of the Messrs. Grant, of Sturgeon Creek, and Campbell Brothers, from Ontario, both of whom have considerable droves of cattle fattening on the prairie. The unlimited supply of acorns which strew the ground in the oak-woods would suffice to feed a large herd of swine.

In the Boyne River settlement there are about thirty families.

VICTORIA.

This settlement commences about three miles north of Stony Mountain, but the latter term would not, in any other than a level country, be so applied. It is a ridge some 70 or 100 feet above the surrounding level, of about three miles in length and from a quarter to half a mile in width. The eastern side is a gentle slope, but the western is broken, some portions of it being precipitous. It is covered with a fine growth of poplar. The ridge is composed mostly of limestone rocks, which, where exposed to view, appear to run in layers of from a foot to twenty inches in thickness. No better building stone can possibly be found, and the supply is practically inexhaustible.

THE WESTERN DISTRICT OF MANITOBA.

The traveller, pursuing his journey westward from Winnipeg, would say that all the land which meets the eye is good farming land, but it is only as he reaches Poplar Point that he sees the best of it.

The land stretching from there to Rat Creek, and from the River Assiniboine to Lake Manitoba, cannot be excelled for agricultural purposes. Practical men, who have viewed the wheat lands of California, the extensive plains of Australia, and the wide-spreading prairies of the Western States, agree on this point.

The river lots from Poplar Point to Portage La Prairie were, for the most part, taken up ten years ago by native inhabitants from the Red River Settlement below Winnipeg, who have sold out again in turn to Canadians and Hudson Bay Company employees. The land outside of the river lots is also rapidly filling up.

The statements that I have made with regard to the enormous yield of cereals and roots are not over estimated. As a further proof of this, in October, 1871, one quart of fall wheat was sown not far from Winnipeg; the same was harvested in August, 1872, and produced the very best sample of grain at the rate, as alleged, of 72 bushels per acre, which was exhibited at the Minnesota State Fair, and pronounced the best sample on exhibition.

There is stated to be a settlement on the Lake of the Woods road, on the

Dawson route, with a beautiful park-like appearance, abutting on the River Seine, in Township X, Range 4, in which several families from Ontario are settled, whose land must shortly become very valuable, being within ten miles of the town of Winnipeg.

Springfield, another settlement in an easterly direction from Winnipeg, now presents quite a thriving appearance, and contains from 60 to 70 families. Near it is another settlement known as Sunnyside, containing about 30 families, nearly all from Ontario. The Half-breeds are settled for the most part along the Assiniboine and Red Rivers.

The reader will observe, from the above remarks, that it is not an unsettled country to which he is invited to go and make himself a home on a free grant, but that there are plenty of settlements which he can join. Advantages are afforded in Manitoba and the North West that a new settler in the Western States, though lying further to the South, could not possess, of which I will now make mention.

First. In Manitoba the land is principally prairie, requiring no clearing for agricultural purposes, although timber is to be found in sufficient abundance for building purposes, fencing, and fuel. In addition to the latter there are the large coal fields further west on the Saskatchewan River.

Wherever settlements have been established both grist and saw mills are to be met with.

Secondly. In the Western States the Railway Companies own the lands from 10 to 20 miles on either side of their respective roads, which settlers cannot obtain as Free Grants, but for which they have to pay from \$2.50 and upwards per acre, according to locality. In the Province of Manitoba, however, the settler can at present make his choice of any lots which are not yet taken up; he can always join a settlement, and need never become isolated.

Thirdly. There are good prospects of both railway and water communication before long, the facilities for the latter being especially good, the Province abounding in rivers and lakes which extend through the North West to the very base of the Rocky Mountains, and eastwards to Lake Superior, with the exception of a distance of one hundred and fifty-three miles, as stated by Mr. Wagner, which would require a canal to establish complete water communication.

A steamboat belonging to the Hudson Bay Company already runs on the Saskatchewan for a distance of 600 miles. There is also an outlet through the States by way of Red River, which is navigable from Fort Garry through Minnesota and Dacotah, a distance of 288 miles to Breckenridge, where a branch of the Northern Pacific Railway from St. Paul, 216 miles distant, crosses the river. There is also a railway direct from St. Paul to Pembina on the boundary line, which will be completed and in running order during the coming summer, and which is to be extended to Fort Garry.

Fourthly. Another inducement which Manitoba has to offer settlers is, if the free grant of land to which they are entitled is not sufficient, more can

be procured at one dollar per acre, whereas in the Western States, even beyond the limits of Railway Company's Lands, the price is one dollar and twenty cents per acre.

Fifthly. Although Manitoba lies to the north of Minnesota and Dacotah the cold is neither so extreme, nor the snow fall so heavy as in the latter States, and the changes in the weather are not sudden, as in Kansas and Nebraska States, still further south. In Manitoba during winter the weather though cold is regular, the air dry and healthy. The snow is seldom more than from one to one and a half feet deep, and further west on the Saskatchewan it is said to be even less than that.

A question frequently asked is:

WHAT KIND OF PEOPLE ARE THE HALF-BREEDS?

To briefly state their history, then, in the year 1669 a Company was formed in London under the direction of Prince Rupert for the purpose of prosecuting the fur trade in the region of country surrounding Hudson's Bay. This Company obtained a charter from King Charles II. granting to them and their successors, under the name of "The Governor and Company of adventurers trading into Hudson's Bay," the sole right of trading in all the country watered by rivers flowing into the Hudson's Bay—the charter also authorized them to build and fit out men-of-war, establish forts, and to prevent any other Company from carrying on trade with the natives in their territories, and requiring that they should do all in their power to promote discovery. This Company frequently brought men from England and Scotland as employees for their trading posts, and for the purpose of hunting and trapping—these intermarrying with the native Indians produced the race of people now known as the English Half-breeds, or properly speaking half Indians.

In the year 1783 another Company was formed, composed of French Canadians from Montreal, who commenced the fur trade further East and North of Lake Superior, without any permission from the Government or otherwise. This Company, it is said, at one time employed five thousand men. At length trouble arose between the Hudson's Bay Company and the French Company; and frequent quarrels arose, sometimes ending in bloodshed.

In the year 1821 the two rival Companies amalgamated. The French Canadians also intermarried with the native Indians, and their descendants were called French Half-breeds—this happened over a century ago—so that all these Half-breeds have become, as it were, a distinct race of people.

They are a civilized class of people. I have been amongst them as a stranger, have boarded and lodged with them, and I have invariably found them very obliging and hospitable, and to their honour be it said, I saw none of them as rough and wicked as some of our own class of Canadians. They have schools and churches wherever they have settlements, as I have before mentioned—and I was informed by an official who assists in taking the census, that they can nearly all read and write. They have small houses.

simply built of round timber in the following manner: for a house 16 feet by 24 feet the sills are laid, six posts are hewn square, one for each corner and one in the middle lengthwise, grooves of two inches are cut in the posts in which plates are placed to hold the posts—then timbers are cut to the proper lengths and a two inch tenon made at either end to fit the groove in the posts; these timbers so prepared are slipped in between the posts in the grooves, one on top of the other, until the spaces are filled up to the plates, which are from eight to ten feet above the sills—thus forming the sides and ends of the building; the cracks and openings are all plastered over on the inside and outside and then whitewashed. Some of their buildings are only 16 feet square, in which case only four posts are required.

The roof is made of poles laid close together in rafter form, and filled out with clay, mortar and prairie grass puddled into the clay at one end, the butts of the grass covering the clay—this makes a tight and substantial roof. Buildings thus constructed afford a warm house, and I would recommend settlers with limited means to adopt this plan for their houses, where the timber is so small that they cannot make them in the old Canadian style.

INDIANS.

ARE THERE MANY INDIANS, AND ARE THEY PEACEABLY INCLINED ?

This is another question frequently put to me, and I can say in answer thereto, that as far as I could ascertain, they are both quiet and inoffensive and well satisfied with the Government from which they receive an annuity—three dollars to every soul annually—besides which they have hunting grounds for themselves far back in the North-West. If the agreement, as above, is carried out faithfully by our Government, and I have no doubt it will be, there will be no trouble from the Indians. The British Government has never yet had trouble with the Indians in Canada. The Indians who once enter into a treaty will keep it to the letter, but when a promise to them is broken, they are not only dissatisfied, but will assuredly seek revenge. This, I am told, is what led to the trouble between the American Indians and the residents of some of the Western States, and was the cause of the dreadful massacre of the settlers in Minnesota a few years ago.

The United States Government had made a treaty with the Indians promising them a certain amount of money, out of part of which they were defrauded by the officials appointed to distribute the sums granted to them. I was told by an agent of the Hudson's Bay Company, that some of these American Indians, of the Sioux Tribe, have fled to the North-West of Canada, and that the Company frequently employs them to work at their trading posts, and that they are good workers and respect our Government very much.

FROSTS, AND ADAPTATION OF CLIMATE TO AGRICULTURE.

I agree fully with the following remarks made by Mr. Spence in his pamphlet "Manitoba and the North-West of the Dominion."

"The liability to disastrous frosts in the season of growth, and which so intimately concerns the interests of husbandry, is not any worse in Manitoba than in many parts of Ontario. In the former province the spring of 1869 was an exceptionally late one, and in May several light frosts were experienced, but which did no serious damage to the crops; in fact the injury was scarcely noticeable; this may be accounted for from the following reasons:—1. The dryness of the atmosphere (which is a peculiarity of this region) allows a much lower range of temperature, without injury to vegetation, than in moister climates, and in addition to the heat, gives greater vigor to the plants, which grow rapidly, but with firm texture, and are consequently able to resist severe cold on account of their excessive vitality, the same as a person who has partaken heartily of strong diet is better able to resist the cold of winter. 2. The sudden change of temperature, which is often the case in this region,—one extreme following another in rapid succession—is less deleterious to vigorous plants than a gradual lowering of temperature. The earth and plants still retain the heat previously absorbed, and are thus enabled to bear an atmosphere at 20° much better than at 35° after latent heat has been given off. The soil of the prairie is generally dry, and is rapidly warmed by the rays of the sun in the spring. 3. The benefits arising from the dryness of the air are accounted for from the fact that moisture conveyed in the air has a tendency to soften the delicate covering of the plants, and thus render them more sensitive to cold. 4. The heat-retaining character of the soil. For these and several other reasons that might be mentioned, the climate of Manitoba is less subject to killing frosts than might at first be supposed to be the case on account of its high latitude."

I was informed by Mr. Deputy Sheriff Nesbitt, of Winnipeg, that in the year 1870 the first fall frost of any consequence occurred on the 2nd of October; in the year 1871, on the 15th of October, and last year in the latter part of October, which shows that during the growing season frosts are not likely to do damage to the crops. With regard to spring frosts Mr. Taylor, an aged gentleman now upwards of eighty, and resident in that country about fifty years, informed me that he scarcely ever knew vegetables to suffer from frosts after they have once started in the spring.

The season opens, so I was informed by Messrs. McKenzie and Taylor, for spring ploughing from about the 20th of April to the 1st of May, after which they have very few frosts and cold is very moderate, as the seasons change rapidly from winter to summer—winter generally lasts five months, say from the middle of November to the middle of April. In the year 1871 snow fell very early, on the 12th November, but as a rule there is very little snow before Christmas. When I arrived there, 17th November, last fall,

there was no snow. On the 1st of December there was a slight fall of snow, about an inch in depth.

Although the weather was very cold when I was in the Province, yet the air being clear and dry, the cold is not felt as much as it would be in Ontario, where the air is more moist. On the 28th and 29th November last year, the thermometer stood at 25° to 30° below zero. I was out riding in an open carriage both days, travelling from twelve to sixteen miles without making stoppages, and it did not appear colder to me than it does in Ontario when the thermometer is only from 5° to 10° below zero. During the days above mentioned I saw at several places, as I was proceeding along, herds of cattle pasturing on the open prairies without shelter.

STOCK RAISING AND WOOL GROWING.

From experience of many years it is shown that Manitoba and the North-West are good lands for stock raising, as the grass of the prairies is very nutritious, and the supply for many years will be inexhaustible. Although the weather is cold, the snow, as I said before, generally comes late; yet, notwithstanding, I would consider it more profitable to cut the grass for the winter season and have the cattle and stock sheltered, than to have them run at large as is the case in the States further South, where there is scarcely any snow, but where they have damp, cold winds. It would not cost much to cut the grass with mowers, and then to stack it in ridges or rows, as I have seen it at the Hudson's Bay Company's Posts and on several of the stock raising farms. These stacks so made form a shelter around the stable yards.

I think that wool growing would be the most profitable, as the climate is more suitable than in a warmer and damper air. The natives who have tried the experiment say that sheep do well, and no disease is known amongst the flocks. Wool is easily exported, and would command nearly the same price there as it does here and in the adjoining States, where land is dear, and where there is no hay but what is raised on the cultivated farm lands.

Another great advantage, favorable to the raising of cattle and sheep, is the enormous yield of turnips, carrots, and mangolds, in Manitoba, mentioned by me in the earlier pages of this report.

FRUIT CULTURE.

The culture of fruit, especially apples, has been entirely neglected in Manitoba hitherto; in fact there has never been a practical test made to really know whether fruit trees will flourish or not. This is owing, probably, to there being such abundance of wild fruit, and also to the difficulty of getting young trees for planting. The natives are entirely unacquainted with the culture of fruit trees, as they have been bred and born without seeing any such under cultivation. When we find so great an abundance of wild fruit in the forests, I cannot but believe that many kinds of apples would do well in Manitoba, particularly along the edge of the timber lands. In the State of Minnesota, where the extreme snow storms prevail, and where it is fully as cold, they have very fine fruit. I saw young apple

trees of two years' growth, raised from the seed by Mr. McKenzie, of Rat Creek, and they looked hearty and of a large size for a two years' old growth. I would advise all settlers, once established, to plant apple seeds; the expense would be only trifling, and trees grown from seed will always be better adapted to the climate. After they have grown and have been transplanted about two years, when they should be top-grafted with the hardy varieties suitable for cold climates, such as the Snow-apple (Fameuse) the Rambo, Northern Spy, Spitzenberg, Talman's, Sweeting, &c. I see no reason why apple trees should not thrive there, as it is not the degree of the cold that kills the trees, but the open and the warm weather in the winter, thawing the earth and starting the sap; afterwards freezing hard again to their injury. This is not a common occurrence in Manitoba.

The wild fruit in Manitoba consists of the wild plum, grapes, strawberries, currants, red and black raspberries, cherries, blueberries, whortleberries, high bush cranberries, etc., so that the emigrant need not suffer for the want of good fruit in abundance.

THE BEST TIME FOR THE SETTLER TO COME.

The settler should, if possible, be on his land by the 1st of June, when he would be in time to plant a patch of potatoes which will grow in an ordinary season when ploughed under the prairie sod. The ploughing for the next spring's crop should be done in June or July, when the sap is in the roots of the grass; being turned over at this season of the year it will dry up and the sod will rot, so that the ground will be in proper order for receiving and growing crops in the following spring.

WHAT CAPITAL IS NECESSARY WITH WHICH TO COMMENCE

This is a question frequently asked—the answer depends entirely upon surrounding circumstances. A young man without family, willing to work and save, would secure himself a home in a few years, provided he had only ten dollars to pay the fees for a free grant homestead claim. Work is to be had at high wages, and he could work for other parties part of the time, and then hire help again in turn to assist in putting up a small homestead house. After that he could plough and fence in a few acres for a crop in the following spring. The next year he could earn enough to buy a yoke of oxen and other cattle, and thus, in a short time, he might become, comparatively, an independent farmer. A settler with a family ought to have provisions for one year (or the wherewithal to procure them).

Such a one, desiring to start comfortably, should have the following articles, or the means to purchase them, viz :

One yoke of oxen.....	\$120 00
One waggon.....	80 00
Plough and harrow.....	25 00
Chains, axes, shovels, etc.....	30 00
Stoves, beds, etc.....	60 00
House and stable, say.....	150 00
Total.....	\$465 00

A person having \$800 or \$1,000 can, if he wishes to carry on farming on a large scale, purchase another quarter section in addition to his free grant, when he will have a farm of three hundred and twenty acres of land for cultivation, and in addition can cut all the hay he wants in the marshes, if he thinks it desirable.

In conclusion, I would remark that a poor man can adopt the mode of farming on a small scale for the commencement, as practised by the Half-breeds. They have carts made of two wheels and a straight axle, with two poles fastened on the axle to form shafts, and a rack or box thereon. To a cart so made is hitched one ox. The cart costs about ten dollars, and the ox and harness \$50 to \$60. With such a vehicle a man can do all the teaming that is required on a small farm—and after the first ploughing *one* ox can plough all that is required.

I strongly recommend Manitoba as a home for German emigrants, and as they can obtain large grants of land *en bloc*, they can form a settlement or settlements of their own, where they can preserve their language and customs, as in the Western States of America.

DOMINION LANDS ACT.

The following is a summary of the Dominion Lands Act :

An Act was passed in 1874 (35 Vic. cap. 23, 37 Vic. cap. 19) amending and consolidating the laws and Orders in Council respecting the public lands of the Dominion and was further amended last Session, 39 Vic. cap. 19.

The administration and management is effected through a Branch of the Department of the Minister of the Interior, known as "*the Dominion Lands Office.*"

The surveys divide the lands into quadrilateral townships, containing 36 sections of one mile square in each, together with road allowances of one chain and fifty links in width, between all townships and sections.

Each section of 640 acres is divided into half sections of 320 acres, quarter sections of 160 acres, and half quarter sections of 80 acres. All townships and lots are rectangular. To facilitate the descriptions for Letters Patent of less than a half quarter section, the quarter sections composing every section in accordance with the boundaries of the same, as planted or placed in the original survey, shall be supposed to be divided into quarter quarter sections, or 40 acres. The area of any legal subdivision in Letters Patent shall be held to be more or less, and shall, in each case, be represented by the exact quantity as given to such subdivision in the original survey; provided that nothing in the Act shall be construed to prevent the lands upon the Red and Assiniboine Rivers, surrendered by the Indians to the late Earl of Selkirk, from being laid out in such manner as may be necessary in order to carry out the clause of the Act to prevent fractional sections or lands bordering on any rivers, lake, or other water course or public road from being divided; or such lands from being laid out in lots of any certain frontage and depth, in such manner as may appear desirable; or to prevent the subdivision of sections or other legal subdivisions into wood lots; or from describing the said lands upon the Red and Assiniboine Rivers or such subdivisions of wood lots, for patent, by numbers according to a plan of record, or by metes and bounds, or by both, as may seem expedient.

Unappropriated Dominion lands may at present be purchased at the rate of \$1 per acre; but no purchase of more than a section, or 640 acres, shall be made by the same person. Payments of purchases to be made in cash. The Minister of the Interior may, however, from time to time, reserve tracts of land, as he may deem expedient, for Town or Village plots, such lots to be sold either by private sale, and for such price as he may see fit, or at public auction. The Governor in Council may set apart lands for other public

purposes, such as sites of market places, jails, court houses, places of public worship, burying grounds, schools, benevolent institutions, squares and for other like public purposes.

Free grants of quarter sections, 160 acres, are made to any male or female who is the head of a family, or to any person not the head of a family who has attained the age of 18 years, on condition of three years' settlement, from the time of entering upon possession, provided the limitation of quantity shall not prevent the granting of a wood lot to the same person. When two or more persons have settled on, and seek to obtain a title to, the same land, the homestead right shall be in him who made the first settlement. If both have made improvements, a division of the land may be ordered in such manner as may preserve to the said parties their several improvements.

Questions as to the homestead right arising between different settlers shall be investigated by the Local Agent of the division in which the land is situated, whose report shall be referred to the Minister of the Interior for decision.

Every person claiming a homestead right from actual settlement must file his application for such claim with the Local Agent, previously to such settlement, if in surveyed lands; if in unsurveyed lands, within three months after such land shall have been surveyed.

No patent will be granted for land till the expiration of three years from the time of entering into possession of it.

When both parents die, without having devised the land, and leave a child or children under age, it shall be lawful for the executors (if any) of the last surviving parent, or the guardian of such child or children, with the approval of a Judge of a Superior Court of the Province or Territory in which the lands lie, to sell the lands for the benefit of the infant or infants, but for no other purpose; and the purchaser in such a case shall acquire the homestead right by such purchase, and on carrying out the unperformed conditions of such right, shall receive a patent for the land, upon payment of the office fees.

The title to lands shall remain in the Crown until the issue of the patent therefor, and such lands shall not be liable to be taken in execution before the issue of the patent.

If a settler voluntarily relinquishes his claim, or has been absent from the land entered by him for more than 6 months in any one year, then the right to such land shall be forfeited.

A patent may be obtained by any person before three years, on payment of price at the date of entry, and making proof of settlement and cultivation for not less than 12 months from date of entry.

All assignments and transfers of homestead rights before the issue of the patent shall be null and void, but shall be deemed evidence of abandonment of the right.

These provisions apply only to homesteads and not to lands set apart as timber lands, or to those on which coal or minerals, at the time of entry, are known to exist.

GRAZING LANDS.

Unoccupied Dominion lands may be leased to neighboring settlers for grazing purposes; but such lease shall contain a condition making such land liable for settlement or for sale at any time during the term of such lease, without compensation, save by a proportionate deduction of rent, and a further condition by which, on a notice of two years the Minister of the Interior may cancel the lease at any time during the term.

Unoccupied Dominion lands will be leased to neighbouring settlers for the purpose of cutting hay thereon, but not to the hindrance of the sale and settlement thereof.

MINING LANDS.

As respects mining lands, no reservations of gold, silver, iron, copper or other mines or minerals will be inserted in any patent from the Crown, granting any portion of the Dominion lands. Any person may explore for mines or minerals on any of the Dominion public lands, surveyed or unsurveyed, and, subject to certain provisions, may purchase the same. As respects coal lands, they cannot be taken for homesteads.

TIMBER LANDS.

Provisions are made in the Act for disposing of the timber lands so as to benefit the greatest possible number of settlers, and to prevent any petty monopoly. In the subdivision of townships, consisting partly of prairie and partly of timber land, such of the sections as contain islands, belts, or other tracts of timber shall be subdivided into such number of wood lots, of not less than ten and not more than twenty acres in each lot, as will afford one such wood lot to each quarter section prairie farm in such township.

The Local Agent, as settlers apply for homestead rights in a township, shall apportion to each quarter section one of the adjacent wood lots, which shall be paid for by the applicant at the rate of \$1.00 per acre. When the claimant has fulfilled all requirements of the Act, a patent will issue to him for such wood lot.

Any homestead claimant who, previous to the issue of the patent, shall sell any of the timber on his claim, or on the wood-lot appertaining to his claim, to saw-mill proprietors or to any other than settlers for their own private use, shall be guilty of a trespass and may be prosecuted therefor, and shall forfeit his claim absolutely.

The word *timber* includes all lumber, and all products of timber, including firewood or bark.

The right of cutting timber shall be put up at a bonus per square mile, varying according to the situation and value of the limit, and sold to the highest bidder by competition, either by tender or by public auction.

The purchaser shall receive a lease for 21 years, granting the right of cutting timber on the land, with the following conditions: To erect a saw

mill or mills in connection with such limit or lease, of a capacity to cut at the rate of 1,000 feet broad measure in 24 hours, for every two and a half square miles of limits in the lease, or to establish such other manufactory of wooden goods, the equivalent of such mill or mills, and the lessee to work the limit within two years from the date thereof, and during each succeeding year of the term ;

To take from every tree he cuts down all the timber fit for use, and manufacture the same into sawn lumber or some other saleable product ;

To prevent all unnecessary destruction of growing timber on the part of his men, and to prevent the origin and spread of fires ;

To make monthly returns to Government of the quantities sold or disposed of—of all sawn lumber, timber, cordwood, bark, &c., and the price and value thereof ;

To pay, in addition to the bonus, an annual ground-rent of \$2.00 per square mile, and further, a royalty of 5 per cent. on his monthly account ;

To keep correct books, and submit the same for the inspection of the collector of dues whenever required.

The lease shall be subject to forfeiture for infraction of any of the conditions to which it is subject, or for any fraudulent return.

The lessee who faithfully carries out these conditions shall have the refusal of the same limits, if not required for settlement, for a further term not exceeding 21 years, on payment of the same amount of bonus per square mile as was paid originally, and on such lessee agreeing to such conditions, and to pay such other rates as may be determined on for such second term.

The standard measure used in the surveys of the Dominion is the English measure of length.

Dues to the Crown are to bear interest, and to be a lien on timber cut on limits. Such timber may be seized and sold in payment.

Any person cutting timber without authority on any Dominion lands, shall in addition to the loss of his labour and disbursements, forfeit a sum not exceeding \$3 for each tree he is proved to have cut down. Timber seized, as forfeited, shall be deemed to be condemned, in default of owner claiming it within one month.

FORM OF APPLICATION FOR A HOMESTEAD RIGHT.

I, of do hereby apply to be entered, under the provisions of the *Act respecting the Public Lands of the Dominion* for quarter quarter sections numbers and forming part of section number of the Township of containing acres, for the purpose of securing a homestead right in respect thereof.

AFFIDAVIT IN SUPPORT OF CLAIM FOR HOMESTEAD RIGHT.

I, A.B., do solemnly swear (or affirm, as the case may be), that I am over 18 years of age ; that I have not previously obtained a homestead un-

der the provisions of the "*Dominion Lands Act*"; that the land in question belongs to the class open for homestead entry; that there is no person residing or having improvements thereon; and that my application is made for my exclusive use and benefit, and with the intention to reside upon and cultivate the said Land—So help me God.

On making this affidavit and filing it with the Local Agent and on payment to him of an office fee of ten dollars, he shall be permitted to enter the land specified in the application.

COLONIZATION.

If any person or persons undertake to settle any of the public lands of the Dominion free of expense to the Government, in the proportion of one family to each alternate quarter section, or not less than sixty-four families in any one township, under the Homestead provisions of the Act hereby amended, the Governor in Council may withdraw any such township from public sale and general settlement; and may, if he thinks proper, having reference to the settlement so effected and to the expense incurred by such person or persons in procuring the same, order the sale of any other and additional lands in such township to such person or persons at a reduced price and may make all necessary conditions and agreements for carrying the same into effect.

The expenses, or any part thereof, incurred by any person or persons, for the passage money or subsistence in bringing out an immigrant, or for aid in erecting buildings on the homestead, or in providing farm implements or seed for such immigrant, may if so agreed upon by the parties, be made a charge on the homestead of such immigrant, and in case of such immigrant attempting to evade such liability by obtaining a homestead entry outside of the land withdrawn under the provision of the next preceding section, then, and in such case, the expense incurred on behalf of such immigrant, as above, shall become a charge on the homestead so entered, which, with interest thereon, must be satisfied before a patent shall issue for the land: provided as follows:

(a.) That the sum or sums charged for the passage money and subsistence of such immigrant shall not be in excess of the actual cost of the same as proved to the satisfaction of the Minister of the Interior;

(b.) That an acknowledgment by such immigrant of the debt so incurred shall have been filed in the Dominion Lands Office;

(c.) That, in no case, shall the charge for principal moneys advanced against such homestead exceed in amount the sum of two hundred dollars;

(d.) That no greater rate of interest than six per cent. per annum shall be charged on the debt so incurred by such immigrant.

FOREST TREE CULTURE.

Any person, male or female, being a subject of Her Majesty by birth or naturalization, and having attained the age of eighteen years shall be entitled to be entered for one quarter-section or less quantity of unappropriated Dominion lands as a claim for forest tree planting.

Application for such entry shall be made in Form F, in the schedule hereto, and the person so applying shall make an affidavit before the local agent according to Form G, in the schedule hereto, and shall pay at the time of applying an office fee of ten dollars for which he or she shall receive a receipt and also a certificate of entry, and shall thereupon be entitled to enter into possession of the land.

No patent shall issue for the land so entered until the expiration of six years from the date of entering into possession thereof; and any assignment of such land shall be null and void, unless permission to make the same shall have been previously obtained from the Minister of the Interior.

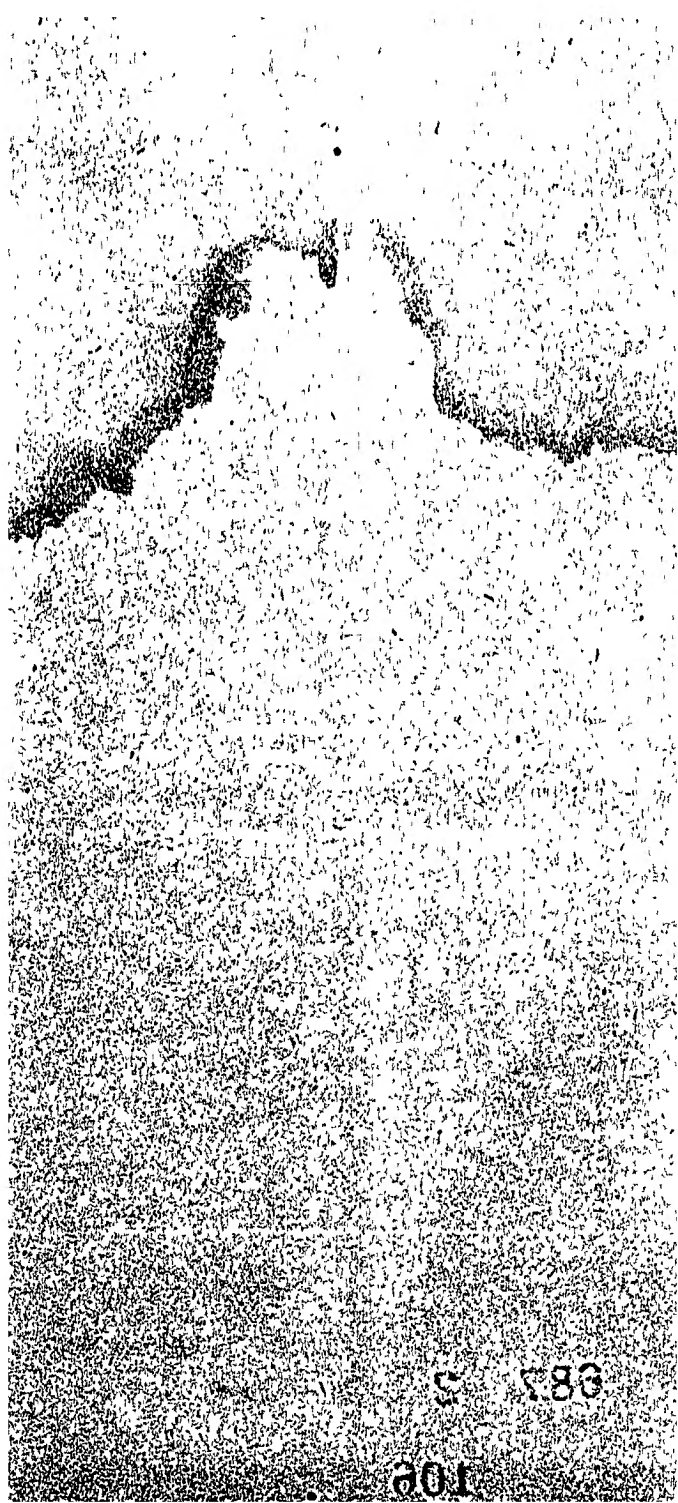
At the expiration of six years the person who obtained the entry, or, if not living, his or her legal representative or assigns shall receive a patent for the land so entered, on proof to the satisfaction of the Local Agent, as follows:—

1. That eight acres of the land entered had been broken and prepared for tree planting within one year after entry, an equal quantity during the second year, and sixteen additional acres within the third year after such date:—

2. That eight acres of the land entered had been planted with forest trees during the second year, an equal quantity during the third year, and sixteen additional acres within four years from the date of entry, the trees so planted not being less than twelve feet apart each way:—

3. That the above area, that is to say, one-fifth of the land has, for the last two years of the term, been planted with timber, and that the latter has been regularly and well cultivated and protected from the time of planting. The entry of a quarter section for preemption in connection with homestead may be substituted in whole or part for one for tree planting.

QUEBEC: S. MARCOTTE, PRINTER.



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